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Original Articles

SUDDEN PARALYSIS OF PHARYNX.

ARTIFICIAL FEEDING FOR FOUR YEARS.*

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PHILADELPHIA.

Rarely a single case is so interesting or so illustrative as to make it worth while to report it. The case I now contribute is, however, so extraordinary that I feel it to be a duty to put it on record.

History.—Mrs. E. S., aged 27, married, of entire health and good personal and family history, had had measles, chicken-pox, whooping-cough in childhood; later, several attacks of mild tonsillitis. At 17, it is said that she had a "typho-malarial" fever. None of these left any trace behind them. As to temperament, patient is of a rather quiet, sensible, unemotional nature. About eighteen months after her marriage, on May 18, 1901, she had a healthy confinement at the eighth month, without complications. Between this time and July 21, she declares that her health was absolutely perfect.

Present Illness.—She went to bed the night of July 21, without sign of trouble, and awakened in the night with a chill and sore throat. By 7 in the morning she could not swallow. Her temperature had risen to 102. From that day to this she has never swallowed by volition a particle of food, having been entirely fed by tube. On July 23 there was high temperature, reaching 104 to 106 in the evening, with much pain and great swelling of the neck on the outside, and considerable inflammation of the pharynx, palatal arch and tonsils. All effort at deglutition gave intense pain and the food choked her and was driven up into the posterior nares. She was seen at this time by a most competent physician, who declared there were no visible signs of diphtheria and no abscess in the tonsils. Within the next forty-eight hours a new set of symptoms appeared. The left leg and arm were felt by her to be cold and were also more cold to the touch than the limbs on the other side. There was marked ptosis of the left eyelid and the face was slightly drawn to the right. She is of the impression that her right side was at that time weaker than the left. Within the first thirty-six hours of the attack she coughed up pus and blood in what she described as large quantities. Dr. Ashby believed them to have come from an abscess which was not in the tonsil. This flow lasted three days and then rather suddenly disappeared. About this time occurred a painful swelling of the left wrist, which lasted three weeks, while also there was much pain in the muscles generally, with soreness but no swelling.

Dr. Banner's Notes.—Dr. Banner, Greensboro, Pa., has these notes of her condition on July 28: Acute tonsillitis and pharyngitis were still present. Her temperature was then 101.5, pulse 88, but he could discover no membranous deposit. Sore throat and abnormal temperature and the pharyngeal paralysis remained. On Aug. 5, 1901, she was carried to Baltimore and taken to the Johns Hopkins Hospital, her temperature being still as high as 102. A somewhat doubtful diagnosis of diphtheria was made. It was said that two or three small white patches were found on the left pillar of the fauces, and that culture showed a few diphtheritic bacilli. At this time she is said to have had anesthesia of the right leg. The knee-jerk reflex was described as absent on the right and left and the ankle jerks were said to be active. She is said to have been free from pain on the third and fourth day after she entered the hospital, and with the exception of the pharyngeal palsy which forbade voluntary deglutition, had no other throat symptoms.

Dr. Mackenzie's Report.—Patient left the hospital September 1 and went home. Returning the next year she was then seen by Dr. Friedenwald, who used various treatments, and finally consulted Dr. Mackenzie, whose account I quote, dated April, 1902:

"On her return she consulted Dr. Julius Friedenwald of this city, under whose careful observation she was for a long time, with various treatments and a full course of potassium iodid. This treatment extended over many weeks and was without result. Finally, baffled in his search for a cause for the paralysis, he brought her to me in consultation. Apart from the paralysis I found absolutely nothing abnormal in the wind-pipe, pharynx, nasal passages, and head sinuses. Deglutition was impossible and she had to be fed through a tube, which was introduced without the slightest trouble (encountering no obstruction) straight to the stomach. At that time there was no suspicion or semblance of a swelling or growth in the esophagus. Whatever the cause, the paralysis was the solitary outward and visible sign. In the vault of the nasal pharynx was a mass of hypertrophied lymphoid tissue, the falsely called adenoid growth, of sufficient size to interfere somewhat with the passage of air through the nasal pharynx. I told Dr. Friedenwald that while I attached no importance to this growth as an etiologic factor in the case, I would nevertheless remove it and see what would happen. This I did April 28, 1902, with cutting forceps, under local cocain anesthesia, completing the operation on the following two days (April 29 and 30, 1902). The macroscopic appearance of the exterior of the growth and the cut surface before and after operation was perfectly typical. No microscopic examination was made. The mass was easily removed, and the wound healed well and quickly. Five days after the operation patient left, for the seashore, I think. It is needless to say that the removal of the tumor had no effect whatsoever on the paralytic conditions. I did not see her again until about a month later (June), when the conditions were unchanged. Having abandoned the idea of a purely neurotic origin of the paralysis, the Eden to which, after excluding everything else, we had turned as a sort of convenient refuge for acknowledged ignorance, having not located the cause and having done nothing for her of any avail, we advised her to go home, watch the developments, and report to us as soon as anything happened for better or worse."

The idea of hysterical palsy had been considered and abandoned after electricity, hypnotism and various drugs had failed to improve her condition. She finally returned home again with the advice given in the quotation from Dr. Mackenzie's letter. During the first year after this abandonment of treatment she fell off 36 pounds in weight. Her teeth, previously sound, crumbled like chalk. In a year she lost all the upper set, and in eighteen months all the lower set, and she now wears a false denture.

Dr. Mitchell's Notes.—In May, 1905, patient saw Dr. John K. Mitchell, and later I examined her. It was now four years from the date of the first onset. The general health is very

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

good, and there is no perceptible defect in any organ except as concerns deglutition. She weighs 86 pounds, is 5 feet 1 inch in height, and appears to be a rather slight but healthy woman. There is no trouble with the blood or with any of the secretions. Her functions are punctually performed. She feeds herself with a tube carried a little past the level of the larynx, and when milk and eggs and soup are poured through this tube they reach the stomach without further difficulty. She is quiet, patient, and unemotional. Dynamometer registers right 47, left 45. She is easily tired, but is fully restored by sleep, which is good and sufficient. Her station is normal, with the eyes open or shut. Reflexes: Right knee jerk, zero, and cannot be reinforced by motion or sensation; left knee jerk capricious, at times active, and is reinforcible. Ankle jerks, right and left, are absent as well as the plantar reflexes right and left. There is no Babinski reflex. The early acquired left ptosis is better, but is not absent, and is worse whenever she is fatigued. The upper part of the left face acts less quickly and less well than the right. The fifth nerve territory of the face and eye is normal, as are also the senses of sight, hearing, smell and taste. The condition of sensation in the legs is interesting.

On the right leg there were three small island spaces on which sense of touch, pain, heat and cold was normal; one was on the posterior aspect of mid-thigh, one in the middle of the calf posteriorly, and one surrounds the instep like a band, but extends somewhat further toward the toes and toward the heel on the outer aspect of the foot than on the inner one. On the outer aspect of this leg there was total anesthesia just above the knee in a space some three inches in extent. Except the areas mentioned in which touch was normal, the rest of the leg was insensitive to pain, but perfectly normal to touch. On the inner side of the leg touch was normally felt in the whole leg, but pain sense was only present in the small islands already spoken of. This condition persisted all through the spring of 1905, but had changed very much toward the normal in the autumn on her return. The left leg is apparently normal. The right leg is still described as feeling colder than the left. This is not perceptible to the touch. There is no disturbance of sensibility in the right arm. Heat and cold are felt tardily on the entire right side of the body, and sensibility to cold is lessened.

Throat Examination by Dr. Seiss.—Examination of the throat exhibits conditions very well described in a letter from Dr. Seiss, parts of which I quote:

"Inspection showed a fair pharyngeal region and an anemic mucous membrane; no gross lesions. The larynx was marvelously easy of examination; with an ordinary gas light I got an excellent view of the bronchial openings, and could study the larynx at leisure. The region showed little on inspection but atrophy and anemia, a singularly normal membrane for a tube-fed patient, in whom more or less traumatic laryngitis is generally present. Palpation with finger and probe gave the most interesting results. The entire pharyngeal region was more or less anesthetic, and never in my thirty years of practice have I been able to so handle a living throat. There was, however, no motor paralysis of the palate; it contracted of its own accord freely. There appears to be both motor and sensory paralysis of the pharyngeal constrictor. The whole larynx seemed void of sensation. I dented the arytenoid region and epiglottic folds with a probe and rubbed the cords, and only by hooking the end of the probe under a cord was coughing produced. But there was no motor laryngeal paralysis, the cords approximating perfectly. I have no idea of the pathology of this case, but as a working basis it seems to be an extreme case of diphtheritic paralysis, with remarkable 'hysterical' sensory symptom, perhaps brought about by the anxiety and suffering due to the organic lesions."

Further Notes by Dr. Mitchell.—My own notes add these facts: Extent of common sensibility all through the region of the throat which could be touched is not as readily defined as it can be on the skin, but touch was felt everywhere and rightly indicated as to place in the mouth, pharynx, and palatal areas. These organs were somewhat sensitive to the prick of a needle. Either they had lost reflex sensibility, or there was a loss of power in the muscles to respond to impressions which usually would have called the muscle into violent action. So entirely absent was the reflex activity of the throat that it was easy to examine it with the finger over the usually sensitive pharyngeal surfaces. Nothing more singular can be imagined than the effect produced on one in making this examination with such unusual freedom. Dr. Seiss has more accurately defined the limits of this lessened sensibility or absence of reflex action. Not even saliva is swallowed. It collects in the mouth and is then allowed to drain out on a handkerchief, but apparently little or none of it passes down the throat; and when we know that for four years the digestion has been almost absolutely perfect, the absence of saliva, which is presumed to render essential service in this function, becomes extremely interesting. The response to electricity in the muscles of the throat was unsatisfactory. On the left side there was no response to faradic electricity; on the right side the palatal muscles and the uvula responded to strong faradic currents. I ought to add that the tongue had perfect mobility.

After some fruitless treatment patient returned home, with accurate directions as to diet, exercise, and the like, and on Nov. 14, 1905, returned to our care. She had gained in the interval 23 pounds, was strong, and had a good color. There was still no reflex action in the upper larynx. The parts could be fingered as before without causing spasms or nausea. There was no pharyngeal deglutition.

Dr. Boyer's Report.—Dr. Boyer now reports as follows of the muscular responses to electricity: "The muscles of the uvula respond to both the galvanic and the faradic currents much better than they did a year ago. The examinations of the two sides are exactly alike. There is no reaction of degeneration in any of the muscles at this time, the negative closing current giving a better response than the positive closing current in the tongue muscles, the muscles that elevate the uvula, and in the constrictors of the throat. Nov. 17, 1905."

In the latest examination of the throat just before patient left us in the month of April, it was found that at the limit of the observer's power to explore the pharynx there was a firm growth in the middle line projecting forward from the anterior face of the pharynx. It was very difficult to reach and might easily have escaped observation; in fact, must have done so.

On her return a careful examination of this growth was made. The tumor was about an inch wide at the level of the arytenoid cartilages. Its extent below was undetermined until an *x*-ray picture not only revealed how dense was this structure, but also the extent to which it extended down the canal behind the pharyngeal mucous membrane. It was possible to carry a finger behind the larynx so as to feel that there was scarcely any room between it and this smooth, hard, rounded mass which projected from the anterior surface of the pharynx. The vertebræ seemed to be normal, the head movements free and painless. The mass described was slightly tender on pressure and too hard to penetrate with an exploring needle. It seemed to be of the firmness of dense cartilage, and that its structure is somewhat of that nature was shown by the depth of shade which appeared in the *x*-ray pictures. The reflexes are generally better. The knee-jerk is present on the left side, but is feeble, though reinforcible. On the right side the knee reflex is obtainable only at every fourth or fifth blow of the hammer. What is most strange is that it is not reinforcible. The ankle jerk is not present on either side. There is still no plantar reflex and no Babinski reflex. There is far less sense of subjective cold on the right side, and the legs are in a nearly normal state as concerns sensation, the areas of peculiar sensation having lessened and in some places disappeared. Menstruation is regular and has always been so since her first attack. I may add that the inertness of the pharyngeal muscles is as before, and the tube feeding a constant sad necessity.

It is clear to me that early in this case there was an abscess between the vertebra and the anterior wall of the pharynx. The suddenness of the formation, the violence of the onset, the absence of any premonitory trouble, and the abrupt and complete palsy of the pharyngeal muscles which seize on and deliver the bolus to the still active esophagus are all remarkable and difficult to explain. The date of the origin of the tumor is doubtful. It was too dense to have been of rapid growth. It could hardly have escaped Dr. Mackenzie, and was probably of a gradual and later formation; nor can it be used to explain the paralysis. There was no sufficient evidence of diphtheria, and had there been it could not explain the paralysis, which is never an initial phenomenon of diphtheria. The early advent, the completeness and the changeless permanence of the palsy enable us to dismiss this malady as the cause.

We must of need fall back on some toxic cause as the parent of the local palsy, but whether this fell directly on the postpharyngeal plexus or, through the sequent abscess, damaged it I am unable to decide. Nor can I explain why this dense growth arose, as seems likely, from the site of the abscess. The great soreness of the muscles elsewhere and the inflammation of the wrist add to the probabilities of an acute toxic cause, primarily local.

The alarming sense of loss of power to swallow must have told emotionally even on a woman as enduring and full of patient courage. Whether this alone or the toxic blow may account for her hysterical symptoms, ptosis, analgesia, retarded sensation, I can not say. I have seen few cases in which the problems presented were more difficult of solution.

No treatment was of value in the local disorder, but it was plain that the last year of care as to the nature and amount of diet had resulted in some increase of sensibility in the throat, but in no gain of power to swallow food. Only one therapeutic means seemed to be of any value. A skilful masseuse was able to use friction of the growth for a few minutes twice a day. This resulted in slowly increasing sensibility of the parts, but in no other change. An operation was, of course, considered, but not only had we doubts as to its competence to insure return of power, but it involved difficulties of a nature to cause the most daring surgeon to hesitate.

DISCUSSION.

DR. P. C. KNAPP, Boston, said that the case is so extraordinary and so unparalleled that really nothing can be said in the way of discussion, except to add a few words in support of Dr. Mitchell's interpretation of it. It must originally have been an acute toxic infectious process, localized chiefly in the throat. From Dr. Mitchell's history of the case; it would seem extremely probable that there were no nervous symptoms elsewhere, which could fairly be said to have contributed to this condition. The theory of postdiphtheritic paralysis is hardly tenable, the symptoms having developed immediately after, but there was possibly involvement of the post-pharyngeal plexus.

DR. CHARLES L. DANA, New York City, suggested a possible explanation of this case on the supposition that it was originally a case of polioencephalitis, which comes on most often after alcoholism, but which also follows grippe and other infections. Dr. Dana has seen cases which came on with paralysis of the throat, and in which there was a polioencephalitis, somewhat diffuse in character, and not confined entirely to the nuclear regions. Of course, it is difficult to explain such cases, without reading and going over the history again, but this has occurred to him as a possible explanation of the case.

MYASTHENIA GRAVIS.*

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Myasthenia gravis is a comparatively rare disease and is especially so when associated with an ophthalmoplegia. Its chief feature is a generalized weakness of the muscles with a susceptibility to their speedy exhaustion and a rapid return to their previous condition after a brief interval of rest. Either normal functioning or artificial stimulation will produce the characteristic muscular enfeeblement. There is no wasting, no reaction of degeneration.

While myasthenia is usually general, it may affect especially the lips, the palate, the pharynx, the muscles of mastication and those of the eyeball; in fact, it was the bulbar weakness which first attracted attention and gave rise to the name, asthenic bulbar paralysis.

CASE REPORTS.

The cases I am about to describe illustrate the two phases of the disease, the one purely bulbar, the other with ophthalmoplegia and associated bulbar and general muscular weakness.

CASE 1.—Mr. H. was referred to me by Dr. Owen, of Anaconda, Mont.

History.—Patient, aged 37, was a German, a stationary engineer, and married; his parents are living and well, the father being 64 years of age, the mother 61. Three brothers and three sisters are living and in good health; one sister died in infancy. The patient was a healthy child, suffering only from the usual diseases of childhood. He had scarlet fever at 14 years, measles the year following, also had mumps, with an associated orchitis. Six years previous to my seeing him he had an attack of typhoid fever. There was no specific history; no enlarged epitrochlear, post-cervical, or inguinal glands, no history of tuberculosis.

Three weeks previous to the present illness he complained of pain in the back of the head, which was worse at night; this lasted one week. With this exception he was perfectly well until March 31, 1902, when he had an attack of diplopia, preceding by five or six days the onset of the disease. A weakness of the entire motor nervous system ensued; there was inability to whistle, to swallow, and to raise the left arm; the lower face became paretic, also the tongue and the frontales. The muscular weakness did not become generalized until about seven days after the left arm was first affected. The only sensory symptom was pain over the entire head.

Examination.—At the time of my first examination, June 25, 1902, there was pain in the spine and occiput. The facial aspect was striking. There was double ptosis, left worse than right; all eye movements were greatly lessened; the eyes could not be moved upward and but partially downward, the outward movement was only about three-fourths normal; the internal recti were markedly affected, the left more than the right. The eyelids could be closed, but the orbicularis palpebrarum was very weak; reaction to light and accommodation sluggish; convergence impaired. The ophthalmoplegia was very pronounced. Unfortunately careful measurements of ocular muscular defects were not made at this time. The face presented an unnatural mask-like appearance. The inability to smile was particularly noticeable; when trying to do so he could only raise the upper lip, there was no outward movement of the angle of the mouth. Gowers happily terms this inability to laugh the "nasal" or "levator smile." He suggests that this may be a characteristic feature of the disease, although it has not been emphasized by others. The effort to laugh appears mirthless, forced, and wholly artificial.

The masseter and temporal muscles were paretic, pteragoids normal, neck muscles weak; head would drop backward at

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times; he could not chew, could swallow liquids, but solids would stick in the throat. If, while lying on the back, he were to converse for a short time, the lower jaw would drop down and tongue fall back in the mouth; he would have to support the jaw with the hand. There was paresis of the soft palate, more marked on the left side. Speech was nasal, especially when tired. Raising the head three or four times in succession from the pillow caused complete exhaustion.

Temperature was normal, pulse from 52 to 64,urine: specific gravity 1,030, color normal, reaction acid, slightly cloudy, sediment none, albumin none, sugar none. Sensibility was normal, organic reflexes normal; of the deep reflexes, right knee-jerk slightly more pronounced than normal, left exaggerated; no ankle clonus; no Babinski; superficial reflexes: plantar slight in both feet, cremasteric exaggerated, abdominal, dorso-lumbar, intrascapular absent; gluteal exaggerated, epigastric present.

The legs became quickly exhausted after flexing and extending them a few times. It was only with great effort that the thighs could be flexed on the abdomen. The myasthenic reaction was well marked in both thighs and legs. Dynamometer 14 degrees in both hands. Coördination of movement normal; wrist-jerks and triceps reflex, exaggerated; the deltoids were markedly paretic, patient could not raise the arms more than one-fourth the distance to the horizontal position and after a few attempts could not raise them at all. The left arm was weaker than the right. After flexing the forearm on the arm 25 times, further ability to do so was lost. When the wrist was dorsiflexed the fingers could not be extended. Capillary circulation was poor. Sleep for a month and a half after the inception of the disease was bad. At the time of the examination only fair. Intelligence good, disposition cheerful. There was vertigo if the patient attempted to rise. He felt stronger in the morning but toward evening grew weaker so that he could scarcely feed himself. His weight was 220 pounds.

Dr. J. W. Chamberlin's Examination.—Early in September the patient was examined by Dr. J. W. Chamberlin, to whose courtesy I am indebted for the following report: Ptosis of both eyes; interference with muscular movements of the eyeballs, especially when turning the left eye toward the temporal side, the movement was restricted and diplopia followed. Pupils semi-dilated, reaction to light and accommodation very sluggish. Some convergence, more marked in left than right eye on looking upward. No diplopia except when looking strongly to the left. A second examination, October 16, showed great improvement in the eye condition with practical disappearance of the ophthalmoplegia.

Mr. H. returned home Oct. 18, 1902, greatly improved. He could then walk about 60 feet without very great fatigue; when he first came to St. Paul he could only take a step or two with the greatest difficulty. Except for the improved eye condition the myasthenic state was the same in character though less in degree as when first examined. The nasal smile had disappeared but the face was still greatly lacking in expression.

H.'s symptoms were exceptionally typical and clearly exemplified the clinical features of this disease. The pain in the back of the head three weeks before the diplopia is undoubtedly a prodromal symptom. I have been able to find a record of seven cases in addition to my own in which there was pain in the head and occiput. In one of Erb's cases this pain in the occiput with stiffness and weakness in the nape of the neck was present during the year previous to the attack. The bulbar involvement in H. is characteristic. The external ocular muscles were first affected; this has occurred in 15 out of 51 cases (Oppenheim.) There was double ptosis, left more than right and at first constant. The patient would try to overcome this by throwing back his head, a weakness of the frontales making this necessary. The ophthalmoplegia externa was marked. There was great difficulty in mastication, so that his diet was limited to liquid and soft foods, a condition which much improved before he returned home. There was weakness of the muscles of the mouth. The face in its expression resembled that of a general paretic. There were no fibrillary contractions, no dyspnea, muscle sense was unimpaired, no tenderness of muscles, no sensory disturbances aside from the pain in the occiput and the head and the lumbar region; of this latter he complained a great deal.

Case 2.—Referred to me by my friend, Dr. A. C. Clark, Stillwater, Minn.

History.—A., aged 35, Swede, married, laborer, whose father died aged 54, and whose mother still lives, 73 years of age; has four brother and one sister. The sister is hysterical; one brother is insane. As a child patient was healthy aside from an attack of pleurisy in his ninth year. Nine years ago a weakness developed in both legs, the right first; it lasted about three weeks. A. was able to walk but could not flex or extend foot or leg normally. Patient drank at this time and for several years used both whisky and beer. After the disappearance of this paresis he was perfectly well until February, 1902, when he contracted a severe cold (grippe). He was lumbering at the time and stayed in camp for five days after which he resumed work. At this time he first observed weakness of the lips; they seemed stiff, he could not move them as usual, could not expectorate. This condition was present only in the evening; in the morning he was apparently all right. The trouble was transient. In the latter part of June, 1902, he again noticed weakness of the lips which was associated with difficulty in swallowing, noticeable only in the evening. There was temporary diplopia. A. continued to work until too weak to do so; this weakness was not the result of muscular myasthenia but of inanition. He complained of a good deal of pain in the top and back of the head, there was also vertigo.

Examination.—When he came under my observation Dec. 31, 1902, I found that he could move the frontales but slightly; there was double ptosis, absolute paralysis of both orbicularis palpebrarum muscles, the nasolabial fold was obliterated, the nasal smile was present, reaction to light and accommodation was apparently normal, the fundus normal except that both optic papillæ were hyperemic; there was no papillitis, simply red; could not touch the roof of the mouth with tongue and was unable to protrude it after having done so a few times. The tongue was flabby and appeared slightly atrophied. Speech was nasal and unintelligible to one not accustomed to it. Soft palate was paralyzed, right side more than left, fluids regurgitating through the nose. He had very great difficulty in getting rid of the saliva and tenacious mucus which constantly accumulated in his mouth. He drank by throwing back his head, holding shut his lips, and allowing the fluid to run down his throat. While he was able to masticate his food, it soon tired him; he could always swallow better in the morning. His face was expressionless; his temperature was 99.4, pulse 90. Organic reflexes were normal, sensibility normal.

Patient was much emaciated; when well he weighed 154 pounds, at the time of my examination his weight was 110 pounds. Knee-jerks were markedly sluggish, the left becoming rapidly exhausted; no ankle clonus; plantar, abdominal, dorso-lumbar, gluteal reflexes normal; cremasteric, epigastric, intrascapular absent. He could walk about half a mile before becoming exhausted. Dynamometer showed right hand 27 degrees; left, 26. After closing and opening his hand 35 or 40 times he found it difficult to do so longer; the myasthenic reaction was present in both biceps.

Case 3.—Professor Y., Northfield, Minn., was referred to me in September, 1903, by Dr. Haldor Sneve under whose care he was.

History.—Professor Y. was 45 years of age. Parents living and both over 70. One brother and two sisters living and well. There was no syphilitic taint but the family history showed one remote case of tuberculosis. At the age of 14 patient suffered from an attack of articular rheumatism. In 1901 he had a severe pneumonia. I regarded the case as a typical myasthenia gravis, in which opinion Dr. Sneve and I did not agree, he believing it to be an acute bulbar palsy. There were 18 cases of scarlet fever in the professor's school. He had a high fever for a few days but this was not accompanied by a rash and in a very short time he was able to resume work. He attended personally to the disinfection of the rooms occupied by these patients and he complained very much of the irri-

tation of the mucous membrane caused by the formaldehyd vapor. He first noticed a feeling as though something had gotten into his eye just after he had finished fumigating. Early in April, 1903, diplopia became apparent and in about a month ptosis of the left upper eyelid was observed. In June, he complained of weakness of the left arm, the third and fourth fingers of the left hand became weak. In July there was ptosis of the right upper eyelid, while at the same time the left began to improve. Not only was the right eye affected at this time, but there was also involvement of the right arm. In August his face and jaws were attacked; mastication was difficult; he could not chew meat; at the same time both legs simultaneously became weak and his feet felt heavy.

Examination.—His face was mask-like in appearance and the nasal smile was well marked. He complained of difficulty in swallowing, could not whistle, could protrude his tongue several times in succession after which he was powerless to do so. The neck muscles were weak, the frontales were involved. Ophthalmoplegia externa was marked, there being practically no outward or inward movements of the eyes, although there was slight motion upward and downward. If he talked for three minutes his speech became thick and he was understood with difficulty. Light gymnastic movements of either arms or legs exhausted him, the arms tiring more quickly than the legs. He could walk a mile with comfort. Dynamometer showed: right hand, 13 degrees; left, 11; after a few attempts the markings registered were: right hand, 5 degrees; left, 5; knee-jerks and superficial reflexes were normal; there was no Babinski; sensation was normal; there was no muscular atrophy. He experienced great difficulty in undressing; had to be assisted. After the complete evolution of the disease he could swallow only liquid food and much of this would be regurgitated through the nostrils.

Subsequent History.—He was greatly annoyed by the accumulation of mucus in the throat which, at times, threatened to choke him. His mind was perfectly clear. The pulse ranged from 74 to 90; temperature was normal. He did not complain of embarrassed respiration; sleep was poor, averaging during the latter part of his illness about four hours nightly. The myasthenic reaction was present in the left arm. Toward the last if he remained in bed and was quiet he was very comfortable, yet he found himself very weak after getting up; he was able to walk across the room and to sit up about two hours daily. November 18 he had a serious sinking spell accompanied by tachycardia and dyspnea which seemed for a time as though it would prove fatal. December 14 he had a similar attack followed by sweating. The drooling of the saliva was a very annoying symptom toward the close; rather than attempt to swallow he would lower the head for hours, allowing the saliva to run from his mouth. He was always better after a night's rest, and it was found expedient to feed him early in the day. The myasthenia was always most marked at night. The remissions so characteristic of this disease were well defined. Involvement of the pneumogastric was the immediate cause of death.

I am greatly indebted to Dr. W. E. Hunt, Northfield, who saw the patient frequently previous to his death, for the final history, as well as many minute details with which I was unfamiliar.

STATISTICAL EVIDENCE.

H. was 37, A. 35 and Y. 45 years of age. This disease occurs most frequently between the twentieth and thirtieth years, the youngest patient whose case as authentically reported was a child of 8 (Taylor), the oldest, a man of 71 years (Hingston and Stoddard). According to Taylor, statistical evidence shows that the sexes are affected about equally. On the contrary, Hun arrives at an entirely different conclusion; from the tabulated cases he finds that it occurs about twice as often in the female as in the male.

ETIOLOGY.

In H. there was no apparent cause; A. developed the first symptom shortly following an attack of grippe; Y. was badly debilitated at the time of the scarlet fever outbreak and, as we have seen, he suffered from what seems to have been an atypical form of this disease; also for two months he was both anxious and overworked. Anxiety, apprehension, and excessive physical strain may well be regarded as etiologic factors, but there has been such a variety of causes enumerated by different writers to account for the genesis of myasthenia gravis as to make it very clear that its true etiology is yet unknown.

SYMPTOMATOLOGY.

Ptosis was the first symptom to appear in the patients H. and Y.; it is present in about 75 per cent. of all cases. At first it is usually unilateral as in Y., then it becomes bilateral and more marked on one side; after a night's sleep it may entirely disappear but it soon becomes apparent after rising and by night is again very noticeable (Frank). All three patients suffered from double ptosis and weakness of the frontales; this was most evident in H. who had to throw back his head in order to see. It is interesting to observe that ophthalmoplegia externa was present in two of these patients, H. and Y., and the nasal smile in all three. Gowers particularly emphasizes these two features; the former has been noted by a number of observers, the latter by him alone. I believe some neurologists still call in question this latter symptom.

Rapid muscle tiring with an associated paresis is the feature of asthenic bulbar palsy. Cold and emotion greatly increase the myasthenia, also women affected with this disease are worse during their menstrual periods (Taylor). This muscular weakness is subject to great variations. As already stated, if, when in a recumberent position, H. conversed for a few moments, his lower jaw would drop and his tongue would fall back in his mouth. After raising his head a few times in succession from the pillow, complete exhaustion of the neck muscles ensued. Speech rapidly became nasal and the slightest exertion quickly exhausted both arms and legs. In A. the muscle tiring and weakness was essentially bulbar. An attempt at conversation for three minutes by Y. made his speech thick and almost unintelligible. After a few efforts to protrude his tongue future trials were useless. The muscles of deglutition and mastication were exhausted on the slightest functioning. There was some improvement in both the ptosis and diplopia after the complete development of the disease. As is usual in these patients, Y. was always better after a night's rest, but even when at his best, early in the morning, there was an evident myasthenia of the affected muscles. I have thus rapidly enumerated and grouped the salient features already detailed in the histories of these three cases so as to present as graphically as possible the muscle tiring and paresis which are the characteristic symptoms of myasthenia gravis.

The myasthenic reaction is a distinctive and very important symptom. It was present in all three of my cases, and although it is in no sense pathognomonic, yet its presence is of real significance and a very material aid in diagnosis. While this reaction works no serious change in the normal nerve and muscle formula, yet it does cause a quantitative alteration in the electrical response, as much stronger currents are required to produce the desired reaction. It is variable in its manifestations, being present at one time and absent at another; moreover, only some of the affected muscles reveal it. After the muscle has been exhausted by faradism then by voluntary contractions it has been observed to react readily to galvanism. The myasthenic reaction is simply

the tetanizing of the muscle by faradism; after a rest it again readily responds to the same stimulus. The galvanic current has no such effect.

In H. the onset of the disease was rapid, the diplopia preceding the myasthenia less than a week; in Y. the diplopia was followed by ptosis in two weeks, the muscular weakness becoming evident about two months later; in A. there was an interval of four months between the appearance of the first symptoms, which were transient, and the real inception of the disease. The development of myasthenia gravis is usually gradual, although exceptionally death may occur within a few weeks. According to the last report I had from H. which was about a year after leaving the hospital, his condition remained practically unchanged. As to A. I have been unable to learn anything concerning him since my examination, from the severity of the bulbar symptoms I should infer that he could have lived but a very short time. Y.'s illness lasted about a year. Seven recoveries are reported in the tabulated cases, the life expectancy varying from one to three years (Hun).

DIFFERENTIAL DIAGNOSIS.

The real nature of the disease is apparent at a glance if the myasthenic symptom-complex is fully developed. It is the atypical cases which cause so much difficulty in diagnosis. The differentiation from nuclear ophthalmoplegia, pseudobulbar paralysis and polioencephalitis can usually be made if one keeps in mind the rapid tiring, the myasthenic reaction, the absence of atrophy, the paresis affecting muscles supplied by motor nerves, both spinal and bulbar, and the variation in the intensity of the symptoms. The greatest danger is the mistaking of asthenic bulbar paralysis for hysteria. When one remembers that not infrequently in its incipient stage multiple cerebrospinal sclerosis has been taken for hysteria, it is not surprising that myasthenia gravis should be so regarded, especially if the case presents the symptoms described by Dr. C. W. Burr as occurring in one of his myasthenic patients, namely, "contraction of the fields of vision, partial reversals of the red and blue fields, and later color confusion." In the absence of definite lesions of the nervous system Oppenheim's appellation of "lethal neurosis" is especially happy. The most significant and constant pathologic lesions are either an enlarged or diseased thymus gland and lymphoid infiltration of the muscles. Burr has reported two cases in which there was a diseased thymus and in one of which there was also the lymphoid infiltration. Hun reports a case of lymphosarcoma of the thymus with similar muscular infiltration. Foreign writers report a much larger number of similar pathological findings.

CONCLUSIONS.

The symptomatology of myasthenia gravis is best explained by supposing the presence in the blood of a toxin affecting the function of the lower motor neuron. Dr. James Taylor suggests that this toxic substance is produced by an enlarged or modified thymus or by an abnormal lymphoid tissue infiltration throughout the body and muscles as well, and that in myasthenia we are dealing with a disease in a certain sense the converse of myxedema. Thus far no treatment has been found efficacious but in H., who was under my care for months at the hospital, I found the most efficient agents to be strychnia, gentle massage and galvanism. No rational therapy can be pursued until we discover a substance that will antagonize this poison which is being constantly thrown into the blood.

FARADIZATION OF THE MOTOR CORTEX IN THE HUMAN BRAIN.

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It can not be doubted that the exact localization of the various functions of the cortex of the human brain is a subject of first importance in neurology, and that much still remains to be done to place this subject in the domain of pure science. It is a subject, moreover, which is attended with limited opportunities and many difficulties; and the duty is, therefore, incumbent on us to seize every rare oportunity that offers, and to put on record every isolated case that has been observed with care and precision. I have, therefore, no apology to make for basing this paper on the record of one case, although a second case which presented itself will also be referred to, and an explanation given of the fact that at the last moment I was disappointed in the opportunity of faradizing the cortex in the patient after an osteoplastic flap had been successfully made.

This subject has always had special interest for me, for I was among the earliest observers in this field in America. The case which Dr. Deaver and I[1] recorded in 1888 was one of Jacksonian epilepsy, in which trephining and excision of portions of the motor cortex were performed, and the motor cortex was explored by faradic stimulation as well as could be done in a comparatively small trephine opening. In that case very definite responses were secured by stimulating what is rather vaguely called the Rolandic area, and these results were apparently closely in accord with the experiments of Ferrier and others on the brains of monkeys. About the same time two other cases were recorded in Philadelphia, one by Keen and the other by Mills and Hearn. The early history of this clinico-experimental work, especially in America, has recently been rewritten by Dr. Mills[2] and need not be considered here in great detail. It is sufficient to say that that early work, as now viewed at a distance, suffers somewhat from a defecive method, a method which was inevitable and inseparable from the time. These cases were instances of mere trephining, and subsequent enlarging by the rongeur, and as a consequence great difficulty was met in accurately recognizing the parts of the cortex exposed. This difficulty was fully recognized and stated in the paper by Lloyd and Deaver.[1] The general results, however, were valuable; that is to say, the reactions were in accord with the general view then held of cortical localization; but they lacked sufficient exactness, due to the difficulty just stated. The view held at that time was that the motor centers were located both in front of and behind the fissure of Rolando, and these observations through small trephine wounds were thought to support that view. I am free now to say, as I said then, that no one present at those operations could be absolutely sure in his mind which one of the exposed fissures was the fissure of Rolando. Moreover, according to my recollection, the bipolar method was used, and this method permits too wide a diffusion of the current for exact observation. This detail in technic is of great importance.

Within the last few years this subject of motor localization has received new light from the work especially of Grünbum and Sherrington.[3] In their experiments on

1. Amer. Jour. Med. Sci., November, 1888.
2. Univ. of Penn. Med. Bull., July-August, 1905.
3. Proc. Royal Soc., vol. lxix, 1902, p. 206; also vol. lxxii, 1904, p. 152.

the higher apes these observers have made out a good case for the limitation of the motor cortex to the precentral convolution and its continuation into the paracentral lobule, and so exact and scientific is their method that it stands as a challenge for us to square our observations with theirs, or to give our reasons for differing with them.

METHODS OF DETERMINING THE MOTOR CORTEX.

There are three methods of determining the motor cortex in the human brain, namely, the pathologic, the histologic, and the experimental.

1. Pathologic.—The pathologic or clinical method is open to many criticisms, which are familiar to all. This method depends on the exact study of pathologic lesions in the brain. But, unfortunately, Nature does not often perform for us such precise experiments with disease as could be wished, and the localizing value of pathologic lesions is, therefore, often uncertain and liable to grave misinterpretation. Nevertheless, we are much dependent on such lesions, and no one will deny that they have done much to establish or to confirm our knowledge of cortical centers. No one, therefore, who has even an elementary knowledge of this subject will decry this pathologic method; all I mean to say here is that it is inferior

Fig. 1.—A case illustrating sensorimotor localization by pathologic lesion in the human brain. The patient had had hemiplegia without anesthesia. The lesion is located largely in front of the fissure of Rolando. The brain as photographed is somewhat tilted toward the spectator.

to the experimental method, when this latter can be employed. I have at present a brain (Fig. 1) recently removed, in which there is an area of softening apparently sharply limited behind by the Rolandic fissure to the precentral gyrus and adjacent parts of the frontal lobe, but its value is impaired by two things: First, it is impossible to say that the subcortical softening is confined to the motor fibers in the centrum ovale; and, second, the clinical notes are somewhat defective, because the patient's mental state was such that accurate tests of sensation were not easily made. Otherwise this case is a beautiful one with which to test this doctrine of motor and sensory localization fore and aft of the Rolandic fissure; and yet it illustrates some of the limitations of the pathologic method. Nevertheless, so far as it goes, it supports the doctrine of the precentral localization of the motor centers, for the patient was completely hemiplegic and apparently had no loss of sensation.

2. Histologic.—The histologic method is not the subject of this paper, but, in view of the important results claimed for it, a brief reference here is desirable. One of its leading exponents at the present time is Dr. Alfred W. Campbell,[4] of England, to whose recent valuable work I am under obligations for some things which I shall say.

In brief, Campbell's work is based on the "retrograde" degeneration which occurs in the giant cells of the motor cortex after a destructive lesion in the neurons of either the first or second order. Retrograde degeneration, originally associated with the name of Gudden, has long been known to occur in a neuron which has been injured. It is the reverse of the well-known Wallerian degeneration, and occurs toward, not away from, the neuron center or cell body, and eventually may include that body. I put on record a striking instance of this in 1893 in a case of syringomyelia,[5] in which the left pyramidal tract was deeply sclerosed above the lesion, and could be traced brainward through and beyond the decussation in the medulla; but no effort was made to trace it to the brain cortex. This was one of the earliest instances of such degeneration put on record in syringomyelia, though it has been noted since in the same disease by Marinesco[6] and possibly by others.

Originally backward degeneration was supposed to be confined to the neuron implicated; thus it was thought that it would not pass from a neuron of the lower to one of the upper order. If, for instance, a peripheral nerve were destroyed, the ganglion cell in the anterior horn in the spinal cord might show a change, but the degeneration would stop there; while if the pyramidal tract or internal capsule were injured a change might in time be looked for in some of the large ganglionic elements in the motor cortex. Marinesco claimed to have found such changes in old cases of lesion of the internal capsule; a condition which is now sometimes called, after him, the *réaction à distance.* Campbell has found some characteristic changes in the motor cortex in cases of amyotrophic lateral sclerosis, and bases some of his claims for motor localization on these observations.

According to Campbell, this retrograde degeneration has been found, however, not to limit itself to the lower order of neurons, but to spring, as it were, across the barrier of the ganglionic cells in the anterior horns of the spinal cord, and thus to travel upward through the neurons of the upper order, and to lead to changes in the giant cells in the motor cortex. This has been found true in old standing cases of amputation of the limbs. Two Italian physicians, Acquisto and Pusateri, working in conjunction, and also Peli, were the first to make this observation. Working on this basis, Campbell also has made some exceedingly important observations, which, if his results are to be accepted (as it seems from their carefulness and accuracy they must be) furnish some very striking histologic proof for the localization of the motor centers.

In brief, Campbell's claims are that the giant cells of Betz are characteristic of the motor cortex; that he has demonstrated that these cells are found only in the precentral convolution and its annex in the paracentral lobule on the mesial aspect of the hemisphere; that, along with a peculiar cell lamination, and an extraordinary wealth of descending fibers, they constitute a motor type of brain cortex; and, finally, that in a series of 6

4. "Histological Studies on the Localization of Cerebral Function," Cambridge, 1905.

5. Trans. Coll. of Phys., Phila., 1893, third series, vol. xv, p. 74.

6. Abst. in Neurol. Centrlbl., 1900, p. 899 (quoted by Campbell, reference No. 4).

cases of long standing amputation of one or other limb (leg or arm) he has clearly demonstrated a degeneration of these cells of Betz, which degeneration is characterized especially by swelling of the cell, a high degree of chromatolysis, a dislocation of the nucleus, and a loss of the dendritic processes. His pictures, drawn accurately from the microscope, support these claims.

It is particularly interesting to note that Campbell's histologic studies seem to support the experimental work of Sherrington and Grünbaum on anthropoid apes. The Betz cells are distributed in the precentral gyrus and its annex in the paracentral lobule; they extend to the very bottom of the Rolandic fissure, which is thus the hindmost limit of the motor cortex; they do not extend over the whole of the exposed surface of the precentral gyrus, but over only a little more than half of it, and in the paracentral lobule they occupy only the anterior portion, or that portion which lies anterior to what would be the position of the Rolandic fissure if this fissure were extended over the edge of the hemisphere and down into the paracentral lobule. It is in these locations that the degenerated giant cells were found. For details as to the position of the various leg, trunk, arm and face centers, reference may be made to Campbell's book; it is enough to say here that these centers occupy the relative positions from above downward with which we have long been familiar, but they do not extend to and on the postcentral convolution.

3. Experimental.—Since the early work of Fritsch and Hitzig and the classical work of David Ferrier,[7] the experimental method has held first place; and it was early seized on, as I have already said, by a few neurologists and surgeons for exploring the human brain. It is remarkable, however, how comparatively little of this experimental work on the human brain has been done recently. The most noteworthy paper recently published is that of Mills and Frazier,[2] in which a series of cases is reported with valuable observations. There are probably two chief reasons why we have heard so little of this kind of work in recent years. First, the opportunities are rare, for cases are not frequent in which an osteoplastic flap is required, and when they do occur the man with scientific curiosity to apply the faradic test is not always present; second, for a number of years the question was considered about settled; every one acquiesced in the location in a general way of the motor centers both in front of and behind the fissure of Rolando; and there seemed no need of further demonstration. But from this dream of assurance the work of Grünbaum and Sherrington has somewhat rudely awakened us.

It is needless to say that the faradization of the human cortex during a surgical operation is just as much an experiment as is the faradization of the cortex of an anthropoid ape in a vivisection; the chief difference is that we are more intimately interested in the man's cortex than in the ape's, and the result is more directly related to our clinical work and is, therefore, the more valuable. The material on which we thus experiment is vastly more to our purpose.

DETAILS OF TECHNIC.

There are some details of the technic which are of importance.

In the first place, in human subjects a large osteoplastic flap should be made. According to most surgeons, such a flap exposes the patient to little, if any, more risk than the smaller sized trephine wound, especially when this latter has to be enlarged with the rongeur. The welfare of the patient demands, or at least justifies, the larger opening in most cases, because this gives the surgeon a better opportunity to perform the task for which the operation is primarily done. Moreover, it leaves a much better permanent result, for there is left no gaping opening in the skull, covered only by the scalp, and pulsating with every emotion and almost with every breath. The faradization, being only an incident in most of these cases, ought, of course, not to determine the details of the operation; but, other things being not to the contrary, there is no harm in so conducting the operation as to give the experimenter a chance. This the osteoplastic flap may do when a trephine opening would not. To determine the Rolandic fissure is important, but this is not difficult in a big osteoplastic opening as wide as 9 or 10 centimeters. There are several methods, more or less exact, of which I am most familiar with Read's base line, Horsley's meter, and Wilson's cytometer. Fuller gives a very simple method, according to which a line is let fall from the lower angle of the malar bone to a point about one-half inch behind the vertex, or the midpoint between the glabella and the external occipital protuberance. I have tested this method both on the living and the dead subject and have found it exact enough for practical purposes. All methods are liable to deviate from exactness, and need to be used with care and judgment. In one sense, the faradization itself is a test, because if it be true that only the cortex in front of the Rolandic fissure is excitable by mild currents, then it need not be difficult to pick out this fissure. This is a sort of reasoning in a circle, but the two propositions are mutually supporting. In any given case, for instance, in which only the area in front of a given fissure is found to be excitable, the inference would be that that fissure is the Rolandic.

The unipolar method should be employed, as this allows of a concentrated effect, which is not possible when both poles are applied to the cortex.

In the experiments of Grünbaum and Sherrington, in which the higher apes, such as the orang-utan, the gorilla, and the chimpanzee, were used,[8] the unipolar method was employed. The motor area was found to extend over the whole length of the precentral gyrus, also to the depth of the fissure of Rolando, but not to extend behind this fissure. About this localization these observers are very positive. The precentral gyrus is also excitable over its whole free width, according to most of their cases, but there seems to be a possibility of some exceptions as to the whole exposed surface of this convolution being always equally excitable. The island of Reil was found inexcitable. It is important to note that, according to these observers, the anterior limit of the motor field is not sharp and abrupt, but fades off. Under conditions producing lowered excitability, this anterior limit retires backward toward the fissure of Rolando. This is seemingly verified by Campbell's histologic studies, for that observer claims that the giant cells of Betz are not so thickly distributed over the anterior part of the precentral gyrus as over its posterior part and down into the depths of the Rolandic fissure. This has suggested to my mind a possible explanation of the fact that in some cases the human cortex has failed to give results when faradized; it may be that the faradic pole has been placed too far forward on the convolution. In such cases, the attempt should be made to secure reactions by placing the pole

7. Functions of the Brain, New York, 1886, second edition.

as near as possible to the fissure of Rolando, or even down into that fissure.

Direct faradization of the postcentral gyrus, according to Grünbaum and Sherrington, does not cause motor reactions, but in some cases it seems to facilitate movements when the precentral gyrus is in turn faradized; a sort of reinforcement.

Ablation of portions of the motor cortex in the higher apes causes paresis, which, however, is soon recovered from, a result similar to that found in man, as was true in the original case of Lloyd and Deaver,[1] reported eighteen years ago.

These, in brief, are the results reported by Grünbaum and Sherrington, and it is important to note that they were obtained with mild currents. A mistake is sometimes made, I believe, in using too strong currents on the human brain.

CASE REPORTS.

During the past winter I had two opportunities to test this question by faradizing the human cortex in cases in which a brain operation was required.

The first case occurred in the service of my colleague, Dr. Thomas L. Coley, of the Methodist Hospital. It was a case of traumatic focal epilepsy. The operation was performed by Dr. Joseph M. Spellissy, surgeon to the hospital. I was indebted to Dr. Coley and Dr Spellissy for the privilege of making a faradic exploration in this unusually favorable case, and I also owe to them the privilege of reporting the results. As my paper is especially concerned with the subject of faradization, I shall not attempt a full report of the surgical operation, or give a full clinical history.

Patient.—G. W., aged 23, male, white, was brought to the Methodist Hospital at 11:30 p. m., Feb. 8, 1906.

History.—Two years before, while dismounting from a trolley car, the patient fell, striking his head. Two months after this he had his first epileptic fit. During the next twelve months he had six attacks, and in February, 1905, he was picked up unconscious in Atlantic City and taken to a hospital, where he was trephined by Dr. Stewart. During the next twelve months he had no fits, or, at least, very few (for the history is obscure), but he had several attacks of bleeding from the nose. His mind has been unaffected. On the evening of Feb. 8, 1906 (the night he was brought to the Methodist Hospital), his father heard him come into the house about 11 o'clock. He went to the kitchen and, as afterward appeared, took off his overcoat, coat, vest and shoes, and again left the house. He was probably at the time in a state of epileptic automatism. He had not proceeded more than a few hundred feet from his home, when he must have fallen in a fit, for it was there that the police found him lying unconscious.

Clinical History.—On admission to the hospital he was profoundly unconscious, with a history of having been found in the street by the police fifteen minutes before. His pupils were widely dilated, jaws in trismus, muscles of the arms spastic. During the night he had several fits.

Feb. 9: The fits were carefully noted on this day. They invariably began with a movement of the index and middle fingers of the left[8] hand, and a twitching of the muscles of the jaw, during which the eyes looked toward the right side. The right pupil was slightly larger than the left, not widely dilated, and both pupils reacted to light. Violent pleurothotonos followed. The tonic spasm lasted for from one-half to two minutes, and was not usually followed by a clonic one, though on one occasion the patient had marked clonic movements lasting for about half a minute. On several occasions, before consciousness fully returned, he placed his hand on the site of an old trephine wound on the left side of his head—to be mentioned later.

Feb. 10: The patient had had three fits since the preceding night, of the character already described, varying in duration for from one-half to one and one-half minutes.

Physical Examination.—February 10 the pupils were equal, and the eyegrounds normal. Heart and lungs were negative. Liver and spleen were not palpable. Urine was practically normal, showing a mere trace of albumin and a very few hyaline casts. There was no paralysis in any limb. An old rheumatic trouble had caused some stiffness of the right knee. The mind between fits was perfectly clear.

February 12: The patient had but one fit since the last note. He complained of headache at the site of the old trephine wound. This wound was located on the left side of the head, over the middle and lower portion of the Rolandic area. It was about 5 cm. broad, as measured by the scar in the scalp.

First Operation.—Dr. W. Blair Stewart, Atlantic City, N. J., kindly sent the following note of the operation, which he had performed: He had been informed that before the patient came under his charge he had had many attacks of focal epilepsy; as many as twenty in one day. They began in the right hand and arm. Dr. Stewart trephined over the arm center of the left side, and found a number of dense adhesions to and near the button of bone removed. The dura was very thick at this point, and the intracranial tension so great that when the dura was punctured the cerebrospinal fluid spurted out in considerable quantity, but it was perfectly clear. All adhesions were broken up and the bone still further cut away. Recovery from the operation was perfect, and for three months there was no return of the fits. Dr. Stewart evidently found no marks of fracture of the skull; and as he makes no mention of faradizing the cortex, it is to be presumed that he made no such exploration.

Fig. 2.—Diagram to illustrate faradization of the motor cortex. The dotted line shows the location of the osteoplastic flap. The continuous line indicates the fissure of Rolando. The numerals indicate reactions as follows: 1, hand and arm; 2, neck; 3, face. It was not found practicable to differentiate with certainty the centers for the hand from those for the arm. V is the vertex or midpoint between the glabella and the external occipital protuberance. No reactions were obtained from behind the central, or Rolandic, fissure.

Second Operation.—This operation was done Feb. 21, 1906, in the Methodist Hospital by Dr. Spellissy. A large osteoplastic flap was laid back, exposing the area both in front of and behind the fissure of Rolando on the left side. It included the site of the former trephine opening, as made by Dr. Stewart, but was much larger. Very firm adhesions were found between the dura and the edges of the wound made by the previous operation, and a thickening of the dura at this point formed a dense nodule about 1 cm. in diameter. This was removed. The dura was laid back and the convolutions, both in front of and behind the fissure of Rolando, were subjected to careful tests by faradism.

Faradic Tests.—The unipolar method was employed; and in determining the fissure of Rolando and in noting the reactions I received valuable aid from Dr. D. J. McCarthy. The fissure of Rolando divided the exposed area into two unequal parts, the anterior being smaller than the posterior part of this area. It extended completely across the field and occupied very accurately the location as indicated by measurements on the outside of the skull, especially Read's lines, and the aforesaid line of Fuller. Although the anterior portion, or that in front of the fissure of Rolando, was only about two-fifths of the whole area exposed, it was ample for exploration. The upper margin of the osteoplastic flap reached to within about 3 cm. of the mid-longitudinal line of the skull; therefore the leg centers were doubtless not exposed. The width of the osteoplastic flap

8. The bedside notes have *left*, but from all the subsequent history of the case it is probable that this is a mistake for *right*.

from before backward was little short of 10 cm. and its height was a little more than 7 cm.

A moderate strength of current was used, one which would cause slight reaction when applied to a motor point of a nerve under the skin of the hand or forearm. The first applications were made to the precentral convolution, as I wished to test it before the postcentral convolution had been stimulated. According to Grünbaum and Sherrington excitation of the postcentral convolution seems to act as a reinforcement to the precentral, it was, therefore, deemed best to make the observation on the precentral gyre first.

Reactions were promptly obtained by faradizing the precentral gyrus, and their location is indicated in Figure 2. They were noted in the arm, hand, neck and face, in the order named, from above downward. The centers for the arm and hand were near the upper limit of the exposed area; no reaction was observed in the lower limb, so it is to be concluded, as already said, that the leg centers were not exposed. The center for movements in the neck apppeared to be between those for the upper limb and those for the face; the latter were the lowest exposed by the operation. So far as the relative position of these various centers from above downward is concerned, they were practically the same as has been known for years. When the electrode was applied to the post central gyrus no response was obtained. The application was made with the same care and with the same pressure as to the precentral gyrus.

So far as observations on one case can determine the important question of the location of the motor centers entirely in front of the central fissure, my observation was entirely in accord with this claim. The applications were made with exactly the same strength and same care to the postcentral gyrus as to the precentral, but no reaction whatever was obtained. The experiment was repeated several times, the electrode being applied finally to the pre-Rolandic and post-Rolandic regions alternately, and always with the same result; the reactions were prompt when the precentral gyrus was faradized, and there was no response when the postcentral gyrus was touched. These observations were corroborated by Dr. McCarthy, Dr. Coley, Dr. Spellissy and the others present. The electrode used was the blunt end of a thick wire, thinly covered with wet absorbent cotton, so that there would be as little diffusion of the current as possible. I was careful, moreover, to make as light a touch as possible, although ample to excite the reaction, and exactly the same in all the regions faradized.

It is interesting to note that this patient has had no return of his fits nine months after the operation.

CASE 2.—A woman, about 40 years of age, was admitted to my wards in the Methodist Hospital.

History.—The symptoms had been a hemiplegia, of gradual onset and slow progress, with a high grade of choked disc, some headache, cerebral vomiting and incontinence of urine and feces, with mental changes, but no anesthesia. There were no convulsions. A diagnosis of cerebral tumor, possibly subcortical, and partly in the frontal region, had been made.

Operation.—Although not a promising case, it was resolved to do an exploratory operation. With this intention, Dr. Spellissy, at my request, turned down a large osteoplastic flap from over the Rolandic region. No tumor was found. The intention to explore the cortex with faradism could not be carried out because the patient's condition on the table became alarming, and it was thought best not to take extra time. So the flap was closed. The patient eventually recovered from the operation, although the flap was a long time in healing.

In Case 2 the question arises whether a subcortical tumor, causing hemiplegia, might not interfere with the transmission of cortical impressions. I am sorry that the test was not made, as, either way, it would have been an interesting observation.

This patient partially recovered the power in her hand soon after the operation; and this suggests a comment on the now temporarily popular operation of "decompression." No decompression was possible in this case, however, because the flap was firmly secured in place, after the dura had been sutured. I imagine that some readjustment of parts took place as a result of the operation, permitting some restoration of power.

ADDENDA TO THERAPEUTIC MEASURES IN CERTAIN FORMS OF NEPHRITIS.*

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BOSTON.

It is a recognized fact that the therapeutic agents now known and made use of are entirely inadequate satisfactorily to check the progress of diseases belonging to the kidney. This is true in spite of the constant additions of drugs and other remedies to our list of available measures. I appreciate most keenly that the physician busy in general practice is well-nigh overwhelmed by the so-called new methods which come into vogue. It is with some hesitation that I stand before you as an earnest advocate of lavage of the renal pelves as an addition to the usual medication in certain types of nephritis.

Each true physician, however, is likewise a true student, and the goal of his most intense desire should be to give to his patients in the way of treatment only the very best that can be obtained from every possible source. We therefore must become co-workers in medical progress. Each one working in his own way may be able to suggest from his field of experience a remedy of proven value, or if by patient, arduous labor he become skilled in special surgical procedures, his deductions will become our guide. We all should exercise the right to question, to discuss, to agree or disagree, but we have not the right to cast aside a principle or a truth because it happens to be new to us or because in the hustle of a busy practice we have been unable to devote the time and study necessary to perfect ourselves in the groundwork on which the actual realization of the research is based.

MICROSCOPIC ANALYSIS.

To know the secrets of our microscope is a most essential element when we attempt to unravel the mysteries of disease of the kidneys. Well do I remember when the ordinary urinary examination consisted in taking the specific gravity, in noting the reaction, the color and similar qualities, and in ascertaining if albumin or sugar were present. This was essentially all that was asked for or required, and many a patient has been told he was normal in every way if these simple tests alone were satisfactory. When, after some agitation, the microscope was used, a few crystals that one could not escape seeing were called by some name, as a rule wrongly, and epithelium became a generic term that conveyed no special meaning and surely gave us no aid in diagnosis. This is now a thing of the past, and from the form and general appearance of the various epithelia and other cells we learn location and extent of invasion of disease and the various layers of the mucosa that are infringed on. By the shreds of connective tissue accompanying large numbers of pus corpuscles, we are apprised of abscess formation; if this be in the kidney its location may be determined from the presence of certain well-known epithelia. We also learn to differentiate between a true cast and a cylindroid, and are able to determine

* Read in the Section on Pharmacology of the American Medical Association at the Fifty-seventh Annual Session, June, 1906.

the presence and the nature of a calculus, the existence of which is from other other signs suspected.

Time and again in obscure cases in which the diagnosis is unsatisfactory do we gain true light from a thorough chemical and microscopic examination of the urine. All can not become experts in this method of diagnosis, but when one is in doubt he can profit by the skill of those who have made a life-long study of this work and in this way gain the information he seeks. It is a safe procedure to examine accurately the urine in every case in which any doubt exists as to the exact nature of the ailment. Those who follow this advice will never regret it. Such examination will in many cases result in the recognition of the site of the lesion giving rise to obscure clinical pictures, and make possible early efforts to prevent the extension of the inflammatory processes that in a short time are sure to follow; before it is too late measures will be taken to prevent serious inroads of disease.

PRELIMINARY MEASURES.

In addition to the urinary examination as a method of exact diagnosis, successful renal lavage requires preliminary measures. Skill is needed for the very simple but potent procedure of washing out the bladder. The introduction of the catheter without causing pain may possibly be looked on as a slight surgical trick, but it is one which when well done gives prompt relief to existing agonies of pain that at times almost frenzy the patient. Study this in its details and also accustom yourselves to select the best solutions to use in each case requiring this interference. Even if in case of disease of the kidney you find it necessary to refer your patient to one who is regarded as being skilled in this special branch, it will fall to you again to look after the condition of the bladder and employ certain medications. There are many medical journals having on their staff able writers which devote their pages almost exclusively to diseases of the bladder and the kidneys. These journals or individual reprints of papers furnish details of operative interference, the suggestion of new remedies, and discuss new theories far better than a paper of this kind can even touch on at this time.

RENAL LAVAGE IN LITHEMIA AND OXALURIA.

Lithemia and oxaluria, both at times stubborn in character, both failing to respond to internal medication, change in scene and diet, will be conquered if after the usual therapeutic measures have failed there be added to the general treatment lavage of the renal pelves with warm boracic-acid solution. This may become necessary, as crystals of uric acid or of oxalate of lime cause in the pelves of the kidney an irritation that may start a pyelitis, which in turn extends and if not combated will end in a nephritis. Within the past year 3 patients suffering from mild parenchymatous nephritis presented themselves for treatment. In each the disturbance was limited to one kidney and was due to a twist or stricture in the ureter, causing the urine to accumulate and excite irritation and inflammation. The pains complained of were sharp and intermittent in character. A full dilatation followed by lavage seems in each patient to have entirely eradicated this most annoying condition. Stricture in the urethra or ureter should be suspected in certain cases with ill-defined histories and thorough examination at once be made with a view to their correction and the institution of lavage. Our armamentarium is at best limited in its scope and power, and additions of merit should indeed be welcomed.

Lavage of the renal pelves is in selected cases a factor of unique worth, and so many confirmatory cases have been reported by recognized authorities that an enumeration of additional instances from a record book is hardly called for at this time. In tuberculous conditions, in the small white kidney, and in the advanced stages of interstitial change in the kidney structure, lavage is without value and as a rule will only do harm. This being so, a diagnosis of any of these conditions will not even suggest an attempt to use this form of local medication. Equally confident am I that in many other phases of kidney lesion we possess in lavage a powerful and efficient agent in producing alleviation or even a cure, or surely in preventing extension of dangerous and ill-defined stages of inflammatory affections.

IN PYELITIS.

Catarrhal pyelitis is a particular phase in kidney affections that as yet appears often to be overlooked in the beginning. It is one that may end in spontaneous recovery without local interference, but is far more apt slowly but surely to increase in strength and insiduously invade more and more of the renal tissues. Among the causes of pyelitis are extension of inflammation from the neck of the bladder, or a purulent cystitis or catarrh of the vesical trigone may ascend the ureters to the pelves, or inflammation of the kidney may involve the pelvis. Pyelitis is found when a calculus is present or when an excess of uric acid or oxalate of lime has existed for a long time. Infection from a non-sterile catheter or the progression of changes first started by gonorrhea and its complications may also be causative elements. If, then, in addition to the clinical history, pelvic epithelia are repeatedly found in the urine, catarrhal pyelitis must be suspected.

In purulent pyelitis or pyonephrosis, examination of the mixed urine is not entirely satisfactory owing to the immense number of pus corpuscles that tend to obscure other elements. Cystoscopic examination with catheterization of the ureters immediately clears up doubt that may have existed and locates the disease. If such a case does not show a gain under rest, diet, and the well-known medicaments as salol, hexamethylenamin (urotropin), potassium citrate, etc., there is usually thought to be nothing possible but recourse to a major operation, either nephrotomy or nephrectomy. Before either is performed, however, it is wise first to determine what can be accomplished by a thorough lavage and local medication. Such satisfactory results have followed this procedure that I feel it is entitled to a thoroughly fair trial.

IN NEPHRITIS.

In the earlier and milder stages of subacute parenchymatous nephritis and of chronic catarrhal nephritis, the added soothing and healing influence of lavage, given with due care and attention, certainly appears to exert a powerfully beneficial result. The albumin in the urine becomes less and less, casts appear less frequently and finally disappear, and the whole aspect of the patient changes for the better. Annoying and distressing symptoms fade away and there springs forth a new lease of strength and vitality, the patients themselves soon acknowledging that their improvement is not mythical but a reality. Hand in hand with lavage, other appropriate measures as diet, correct hygienic surroundings and supporting remedies necessarily play an important rôle. I call to your attention the benefit derived from lavage only when used as an addendum to our bet-

ter known alleviative measures. Personally, success with these cases now comes instead of former failure. I feel strongly that I am justified in my conclusions, as I have been able to watch cases for more than two years. When certain signs and symptoms have disappeared and have not returned, and in the interim the patients continually gain, is it not fair to ascribe such changes to this particular procedure when without it recrudescence is all that is ever expected?

SKILL IN PROCEDURE.

The manipulation of the cystoscope and the passing of the catheters require a great amount of patient perseverance; especially is long experience needed in acquiring the very deliberate touch necessary for successfully carrying out the procedure. This can never be learned from text-books; it is the vague something that finally comes after hours are spent in attempts and in gaining step by step until something like perfection crowns the arduous efforts. Even a teacher can not well instruct the learner except in the broader principles. In certain published articles I made the attempt to demonstrate each stage, relying on illustrations to make clearer the words, yet I greatly doubt if I succeeded, as each has to conquer the difficulties one by one by his own persistent endeavor. I realize fully that the trained hand alone is to be trusted, and that it is wiser to err on the side of safety and to treat in all its details what appears at first sight to be of minor importance as though it were a major operation.

Cool distilled water is the best material to introduce into the bladder before the cystoscope is used. For the kidney, the solution should be warm and at first mild in strength, regardless of which is selected. The use of small quantities is better than those too large. One may employ silver nitrate, 1 to 10,000 up to 1 to 2,000, in boracic-acid solution; argyrol, freshly prepared, 5 per cent.; or albargin, one-fourth to one-half of 1 per cent.

The exact way in which lavage acts in producing its beneficial action is not absolutely known, but from the results its employment is certainly justifiable. While lavage is still crude and still leaves much to be ascertained and much to be desired, I believe it is a procedure possessing intrinsic merit, and will in time force itself on the recognition of the profession. It is not possible that all observers using this particular treatment can be wrong in their deductions. And in the future better instruments for its performance will be devised, and better and more healing and solvent solutions discovered, thus enhancing its efficacy and increasing the value which it now possesses.

IMPROVED INTERNAL MEDICATION NEEDED.

In the same line of thought let us direct our attention to the internal medicaments to-day employed in lesions of the kidney and ask if there is anything like true worth existing in any of them. But I am optimistic and believe that more powerful, efficacious and generally reliable preparations for internal employment will be found. There must even be devised a diet that will surpass that at present recognized as the most favorable. There may yet be discovered a way in which by the diet alone many harmful micro-organisms will be eliminated from the human system. We are at present but in the kindergarten stage of treating diseases of the kidney. Yet I believe the road to a fuller and keener understanding of them has been found. Then let each and every one of us do his best to aid in clearing up this devious pathway in therapeutics.

CONCLUSIONS.

Let me summarize the points which I trust will meet with your attention and approval. There is needed:

1. More extensive scientific investigation of the chemical and microscopic characters of the urine.
2. A full examination of the urine of patients much more often than is now done.
3. Earlier recognition of pyelitis and beginning forms of nephritis. Also of both ureteral and urethral strictures.
4. Employment of lavage of the renal pelves in properly selected cases.
5. Greater familiarity with simple bladder washes and the proper use of the catheter.
6. Searching investigations regarding better therapeutic agents in kidney diseases and a more thorough study of the chemistry of foods.
7. Better coöperation in thought and work among the members of the medical profession.

43 Tremont Street.

DISCUSSION.

DR. W. J. ROBINSON, New York City, does not believe that lavage of the renal pelvis is invariably a beneficent measure, although in a few selected cases, when administered by very skilled hands, it is such. On the other hand, it is a very dangerous procedure, one which has done more harm than good. He knows of cases where it was the cause of pyelitis and quite severe hemorrhage. A year ago, he said, he heard the late Prof. Max Nitze, the discoverer of the cystoscope, say: "I really do not know whether my discovery has been a blessing or a curse." Of course, in Nitze's hands it did good in practically every case, but many physicians are careless, and to avoid injury the technic must be followed with great care. Many physicians are attempting ureteral catheterization who are not fully familiar with the technic of the method, and Dr. Robinson believes that much damage is being done by it. It is a dangerous procedure, and, besides, in most cases it is not needed. In selected cases, in the hands of specialists, it will be beneficial, but it is not a procedure to be recommended to the general profession even to try.

As to casts in the urine, it is Dr. Robinson's opinion that it is important to call attention to the fact that many casts found in urine which has been centrifugated are not true casts, but have been made artificially by the centrifuge. This has been proved in a number of instances.

DR. A. R. ELLIOTT, Chicago, regretted that Dr. Johnson did not clearly define the forms of nephritis in which he employs this therapeutic measure. Dr. Elliott thinks he is justified in concluding from his remarks that it is employed in local conditions, conditions of infection of the kidney, either one or both; in short, that it is a local treatment for a local disease. It is important to differentiate here between the different forms of nephritis; if this is not done there is danger of the instrument being employed in true chronic Bright's disease. Another form of local treatment has been applied broadly to the treatment of chronic nephritis, decapsulation which, used originally for the cure of local conditions, was subsequently, and erroneously, applied to the treatment of chronic Bright's disease. Dr. Elliott said that the greatest necessity exists for a true distinction between local and infective nephritis and Bright's disease, diffuse or interstitial. He took exception to another statement which Dr. Johnson made, i. e., that casts without albumin in the urine are cylindroids. He thinks that many so-called casts in the urine, with or without albumin, are cylindroids erroneously interpreted, but they are not true casts. If an individual familiarizes himself with the form of the true renal cast he will not make mistakes. Tailed casts are undoubtedly often cylindroids, but Dr. Elliott gave it as his experience that true casts are found in the urine without albumin.

DR. J. M. JOHNSON, Boston, did not agree with Dr. Robinson that lavage is limited to such a very narrow field. The time is not far distant, he said, when in the larger cities there will be needed some few men to do this particular work and aid physicians and surgeons alike, when their cases demand this procedure. The operation is fraught with danger in the hands of the neophyte. It demands the same care that governs a major operation. It can never become general. It requires the giving up of a practice while engaged in study, and much very costly apparatus. Lavage of the renal pelves when better recognized and known will possess true value and clear up many points that are doubtful. Dr. Johnson believes that the true cast is pathologic. Albumin can always be found where there are true casts. Sedimentation by gravitation alone is far ahead of the use of the centrifuge, and a better diagnosis can be given from the microscopic findings.

MENSURATION OF THE CHILD IN THE UTERUS WITH NEW METHODS.

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Estimation of the size of the fetus in the uterus has long occupied the attention of investigators in obstetrics. Any degree of pelvic contraction is only relative and a pelvis is judged to be large or small according as to whether or not it will admit the passage of the head. The ever present obstetrical question is whether a fetal head of unknown dimensions can be delivered through a pelvis whose measurements can be ascertained.

The ordinary operations of obstetrics offer no great difficulty to a man of surgical training when once the procedure has been correctly decided on. This "obstetric judgment" is only gained through much experience of difficult cases and any method of measurement of the fetus in the uterus is a welcome addition to the present inadequate and unsatisfactory maneuvers.

Exact pelvic measurement is a work of supererogation and futile unless some attempt be made to estimate the size of the fetal head.

A knowledge of the size of the fetal body and head offers a sure basis for obstetrical prognosis and for choice of operation. If a pregnancy, in a woman with a contracted pelvis, can be watched and the head of the viable fetus measured from time to time, until it has arrived at such size as to come through the pelvic canal without injury to mother or child, Cesarean section is unnecessary and premature interruption of pregnancy is placed on a scientific and exact foundation.

It is well known that Cesarean section has but little mortality save in patients who have had many examinations and ineffectual attempts at delivery by forceps or other means and who have become infected during these attempts.

Premature children have not the same resistance to disease and have a greater mortality than those born at full term. Karb[1] in a study of 50 cases of artificially interrupted pregnancy, divided his cases into two classes: First, patients in whom pregnancy was interrupted for conditions threatening the life of the mother; in this class there was an infantile mortality of 70.9 per cent. Second, patients with small pelves; in this class the infantile mortality was 53.4 per cent.

1. Karb: Zeit. f. Heil, 1903, vol. xxiv, No. 4, p. 12.

Kleinwachter[2] states, that following induced labor for pelvic deformity, 78.3 per cent. of the children were born alive and only 60.4 per cent. leave the hospital in good condition.

Kronig and Zweifel[3] have investigated 726 cases of patients with small pelves and found that 91 per cent. delivered themselves without assistance. Among these 669 babies, 44 children were stillborn. Assistance was given in 64 cases and 39 babies succumbed. Thus, there was a total loss of 83. Voorhees[4] states that during 12 years in New York City 24 per cent. of all deaths were among children under one year of age. He states that in the Sloane Maternity Hospital, after induction of labor, 21 per cent. of the babies were stillborn and only 70 per cent. were discharged from the hospital in good condition.

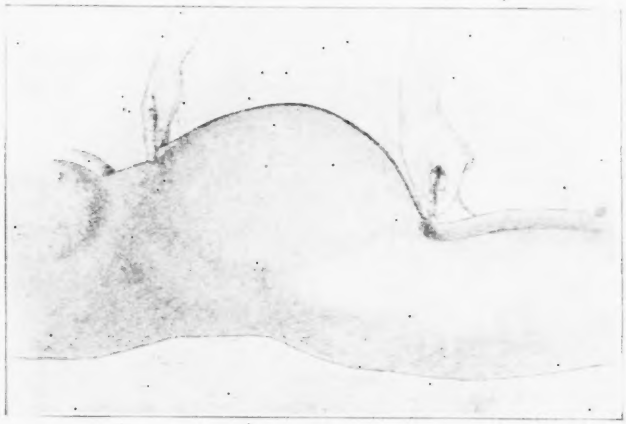

Fig. 1.—Author's method of estimating the duration of pregnancy.

Norris[5] also found that, in 30 cases of induced labor for lesser degrees of pelvic contraction, 7 infants died.

It may be seen that taking all cases of induced labor, there is a very high primary mortality among the infants. It is obvious, however, that the nearer the approach to term the greater is the prospect of life for the uninjured infant. Ostreil[6] has shown that among infants of fair size, there is no such great mortality. He studied 1,542 cases of prematurely born babies at the Prague maternity and accepts 44 cm. as the minimum length and 2,000 grams as the minimum weight of these children under discussion. He states that he is unable to find that they showed less resisting power during their later life than children born at term and that the morbidity and mortality among them during infancy is not materially higher than those among ordinary children.

If it be possible to allow the fetus to reach a good size, its hope of survival is correspondingly increased. For this purpose a knowledge of the duration of pregnancy and a correct estimation of the size of the fetus is necessary.

ESTIMATION OF DURATION OF PREGNANCY.

Calculation of the expected date of delivery at full term from the date of the last menstruation is a useful

2. Kleinwachter: "Die Kunstleche unter krechung der Swangerschaft." 1902, No. III.
3. Kronig and Zweifel: "Die Therapie bein Enger Becker," Leipzig, 1901.
4. Voorhees: Amer. Jour. of Obst., 1905, vol. III, No. 2.
5. Norris: Amer. Jour. of Obstetrics, 1904, vol. I, No. 3.
6. Ostreil: Monatschr. f. Geb. u. Gyn., 1905, vl. xxii, No. 1.

but not infallible method. Blau and Christofoletti[7] examined the records of the clinics of Schauta and Chrobak for ten years and studied 68,032 births to determine the correlation of large children and protracted gestation. In 150 cases pregnancy lasted over 300 days, and in 135 cases over 302 days. Further mistakes in the calculation of labor are made by the fact that primiparæ often forget the exact date of their last menstruation. The possibility of conception having occurred in the postmenstrual, and not in the usual premenstrual period may be, as is pointed out by Norris, a source of error of as much as two or three weeks.

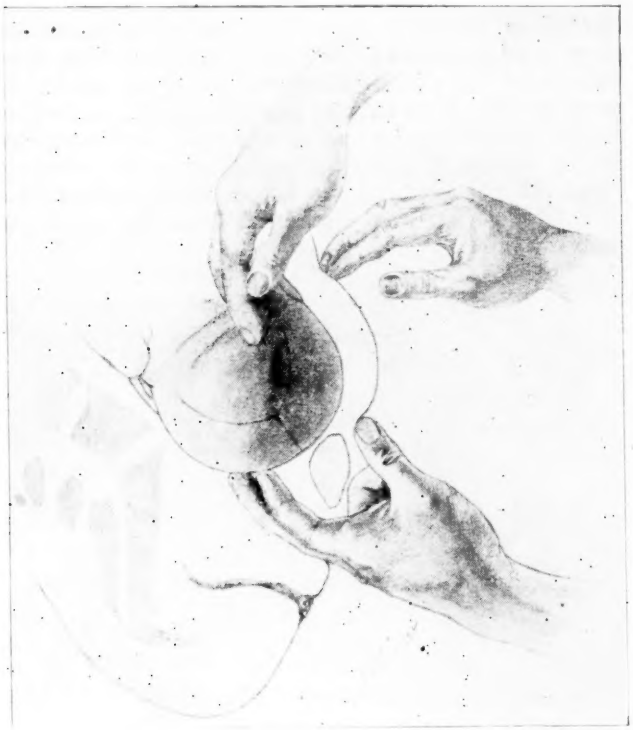

Fig. 2.—Müller's method of estimating the relative size of the head.

Measurement of the height of the fundus of the uterus is a useful adjunct in the estimation of the duration of pregnancy and of the size of the fetus. The umbilicus and ensiform notch are usually taken as the points from which such measurements are made; but the variable distance of these two points from the pubic bone render them useless for such purposes. Several thousand measurements were studied in the hope of reaching an average of height of the umbilicus; but it was found to vary from 12 cm. to 20 cm. above the symphysis. It is obvious that, if a finger's breadth above the umbilicus be taken as the height of the uterus at 6 months, a variable point is reached.

Spiegelberg's[8] table of the height of the uterus at various periods is exact and has been confirmed by me in every measurement. The difficulty lay in the fact that the table is difficult to remember and cumbrous to detail. The following rule was deduced and, within limits, gives fairly exact information in regard to the duration of the pregnancy.

Duration of pregnancy in lunar months = Height of the uterus in cm. ÷ three and one-half.

Thus, if a uterus measures 26 cm. from symphysis to fundus the duration of pregnancy is 7 3/7 lunar months or 7 lunar months and 12 days; or, if 35 cm. is the measurement from symphysis to fundus, the duration of pregnancy is 10 lunar months or the patient is at full term. The tape should follow the contour of the abdominal wall, save at the last dip (Fig. 1). The upper hand should be placed at the highest part of the fundus and held perpendicular to the long axis of the body, while the tape is held against the middle finger by the thumb. Multiparæ with thin soft uteri and lax abdominal walls should be supported at the sides by an assistant, so as to bring occipito-coccygeal axis of the fetus into the long axis of the body.

This method gives satisfactory results and is the most exact means of estimation of the duration of pregnancy by measurement of the size of the uterus. The height of the uterus depends mainly on the length of the occipito-coccygeal measurement. This varies but little in babies of various weights. The amount of the liquor amnii does not affect the measurement inasmuch as excessive fluid goes rather to increase the bulk than the length of the uterus.

It may be said that 35 cm. is the usual height of the uterus at full term when the fetus approximates 3,300 grams, the average weight of the babies studied. For every centimeter of height above this measurement approximately 200 grams should be added to this weight. Thus a uterus measuring 38.5 cm. contained a fetus weighing 4,000 and one measuring 40 cm. and with hydramnios contained a fetus weighing 4,200 grams.

The so-called "sinking" of the fetus which is supposed to occur in the last two weeks of pregnancy was not observed in 100 cases, mostly primiparæ, save just before labor in two multiparæ. I believe that this so-called "sinking" is due to the stretching and relaxation of the abdominal muscles and not to descent of the head into the pelvis. The fundus projects forward when the woman is standing and no diminution in the fundal height is observed in the recumbent position.

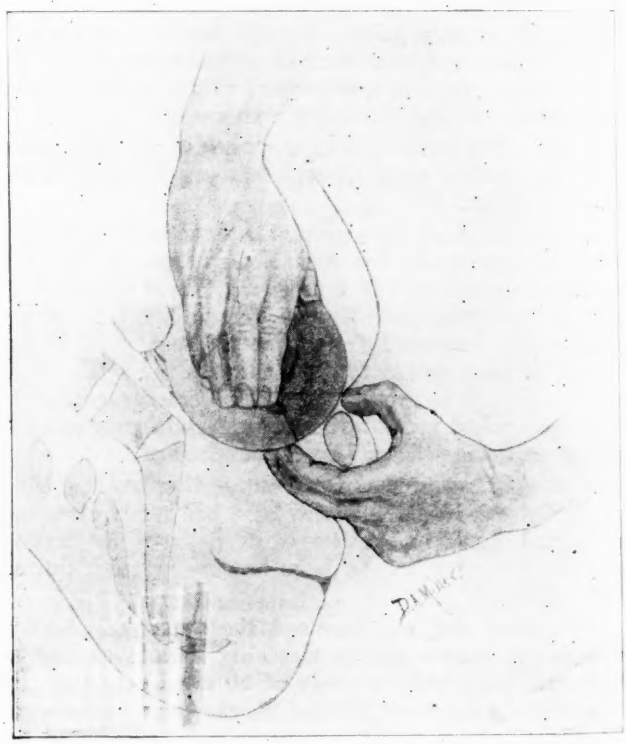

Fig. 3.—Munro-Kerr's modification of Müller's method.

7. Blau and Christofoletti: Monatschr. f. Geb. u. Gyn., 1904.
8. Spiegelberg: "Text-book of Obstetrics."

This is well shown in Hirst's[9] photographs of women at various periods of pregnancy. The head, as a rule, does not descend into the pelvis until the upper segment of the cervix dilates.

MEASUREMENT OF THE HEAD.

Various methods of estimation of the size of the head in relation to the pelvis are practiced. Chief among these is Müller's method (Fig. 2), in which an assistant presses the head into the pelvis while the operator, with two fingers in the vagina, feels how it engages. Another method is that of Pinard, in which the operator grasps the head firmly with one hand while the other rests at the edge of the pelvis and gauges any descent of the cephalic pole. Munro-Kerr (Fig. 3) has modified these methods by introducing two fingers into the vagina and grasping the head with the Pawlic grip. An attempt is made to thrust the head into the pelvis while the thumb of the lower hand feels along the pelvic brim, and estimates the overlapping.

These maneuvers are of some use, but limited in scope. In shallow pelves, they are deceptive; in breech cases, they are useless. They offer only a relative estimation of the size of the head. The undilated cervix and fixed lower uterine segment of primiparæ, for whom these methods are most needed, will not allow of descent of the head. Munro-Kerr's[10] method has given the best results of the three in my hands.

Actual measurement of the head through the abdominal walls has been practiced by Budin and Perret.[11] Perret has devised a special cephalometer by which he

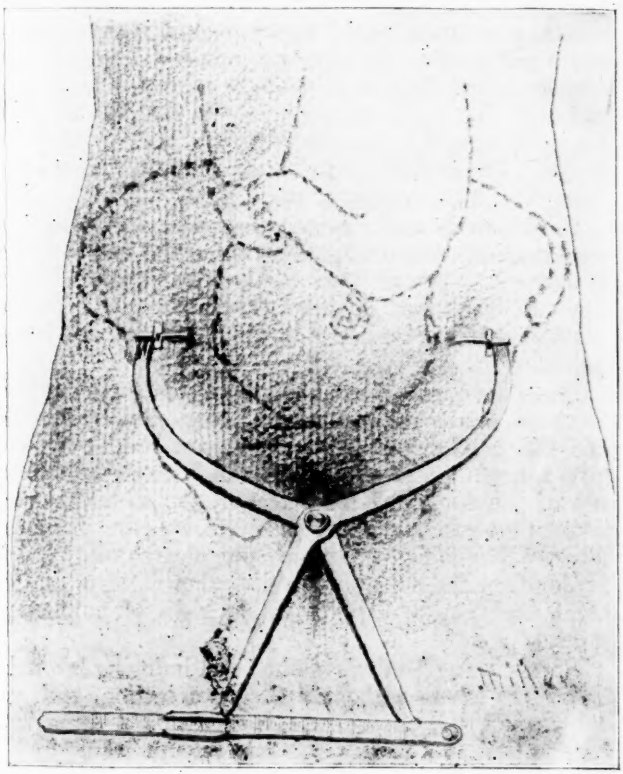

Fig. 4.—Perret's method of cephalimetry.

was able to measure the fetal head with some accuracy. The woman is placed on her back and the operator applies both hands to the abdomen as if for palpation. The short movable blades of the cephalometer are inserted between the fingers and the metal buttons are thrust toward the poles of the fetal head. The occipito-frontal diameter is measured and 2.5 cm. is substracted to obtain the biparietal. The biparietal is the most important diameter inasmuch as it engages in the antero-posterior diameter of the pelvis.

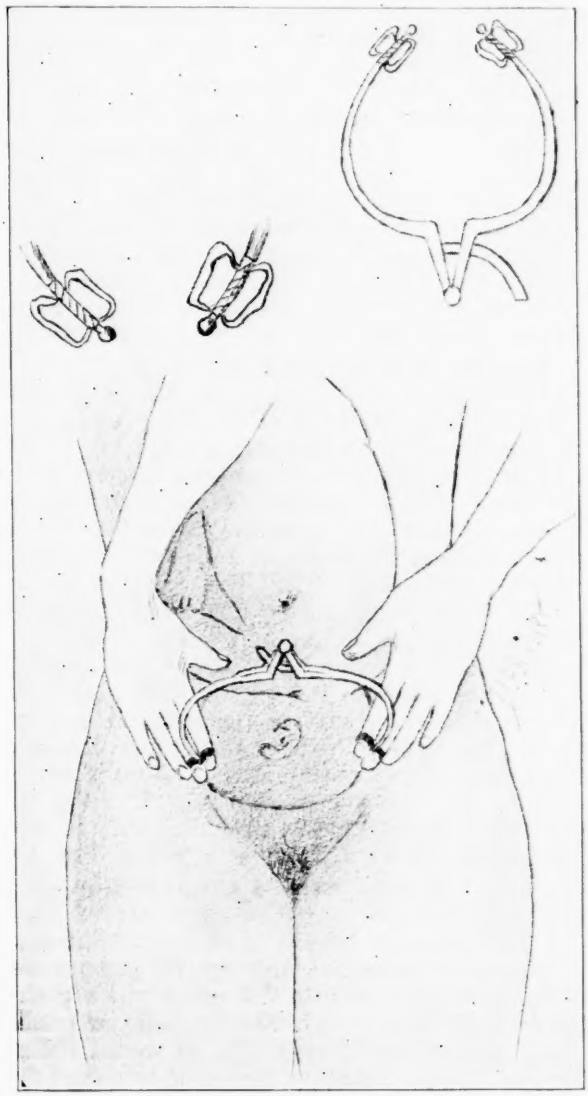

Fig. 5.—Author's method of cephalimetry.

The disadvantages of the method are due to the fact that a special instrument is required and the buttons can not be approximated closely to the cephalic poles. The instrument is only useful when the occipito-frontal diameter lies in the transverse diameter of the pelvis. This is very seldom the case as the most common position is L.O.A. or in the right oblique diameter of the pelvis, the sinciput being deeper and farther from the abdominal wall than the occiput. The cephalometer is flat and rigid and the broad ends with their tips can not be properly depressed to reach the sinciput.

The difference between the occipito-frontal and biparietal diameters is a variable quantity and can not be expressed by any fixed factor as 2.5 cm.

Stone[12] has based his method of measurement on a somewhat similar procedure, he places his hands as if for palpation and makes out the position of the head.

9. Hirst: "Textbook of Obstetrics."
10. Munro-Kerr: Amer. Jour. of Obstet., 1903, vol. xlviii, No. 1.
11. Perret: "L'Obstetrique," November, 1899.
12. Stone: Medical Record, Nov. 4, 1905.

The occipital and frontal poles are then grasped between the hands and an assistant places, from below, the ends of an ordinary pelvimeter, pushing them firmly inward, as the examiner directs. The tips of the pelvimeter are thrust between the middle and ring fingers. This method is open to the objection that it requires an assistant with more or less practice in the maneuver and that the extent to which the tips are thrust in is difficult to control. However, I have frequently practiced this method with Stone and, in his hands, it gives good results.

THE AUTHOR'S METHOD.

I have sought to modify these methods in order to obtain one which, with a common instrument, will give equally good results in all hands. With this idea, an ordinary pelvimeter of simple construction (Fig. 5) was taken and two rings of adhesive plaster, about 1 cm. in width, fastened to each tip. These rings are faced inside with adhesive plaster, back inward, and are made sufficiently large to readily admit the middle and ring fingers. The knob-like tips of the pelvimeter should project about 1 cm. beyond the palpating fingers.

The patient is laid on her back and the operator stands as if to palpate for the position of the head. An accurate diagnosis of the fetal position, not only in regard to the occiput, but as to the amount of flexion of the head, is essential to success. The occiput and sinciput are located; then the fingers are thrust into the rings and the knobs of the instrument approximated to these points as closely as possible. The weight of the hinge side of the pelvimeter is supported by the finger of an assistant or may be held up by a string attached to the operator's arm or button hole. It is necessary that the hinge side should have free play of movement in order that one or other tip may be depressed, if occasion requires. The tips are held firmly against the cephalic poles and the scale read. This gives occipito-frontal diameter. No deduction is required. This fact is not satisfactorily explained. The abdominal walls of a pregnant woman are very thin (usually less than 1 cm. measured at Cesarean section) and it may be that the exact prominences of the cephalic poles are not reached.

All heads above the brim or which may be thrust above the brim can be measured, although the greatest ease is found in thin woman with flat pelves which push the head forward. Small heads with much liquor amnii are difficult to fix; breech cases offer no special difficulty. However, heads lying above the pelvic brim and firmly placed thereon give the best conditions, e. g., in contracted pelves.

Forty-one heads were measured before and after labor and in 31 cases the occipito-frontal diameter was correctly estimated in 9 cases, there was an error of .25 cm. and in one 0.5 cm. These cases included many to which the method was not justly applicable, as the heads lay partially within the pelvis. These cases included 14 cases of contracted pelves of various grades and four Cesarean sections, one of these was done on indications supplied by Stone's and my methods and one on my method alone. The measurements were correctly estimated in both cases.

The size of the occipito-frontal diameter thus may be accurately measured and the important engaging diameter, the biparietal, must be deduced from this. Perret's fixed difference of 2.5 cm. is not accurate. It was found that routine records of head measurements were of no value, as accuracy into quarter centimeters was necessary. Heads of 100 new-born babies were carefully measured and it was found that, while the average difference between the occipito-frontal and biparietal diameters was 2.33 cm., the difference increased with fair regularity according to the increase in size of the occipito-frontal measurement.

TABLE OF MEASUREMENTS OF 100 NEW-BORN BABIES.[13]

No. of cases.	O. F. diameter.	Average difference.	Average weight.
1	10	1.00	2,600
4	10.50	1.55	2,716
8	10.75	1.81	2,975
17	11.00	1.91	3,100
21	11.25	2.07	3,156
19	11.50	2.26	3,247
9	11.75	2.50	3,313
13	12.00	2.30	3,514
5	12.25	2.35	4,100
1	12.50	2.50	4,100
2	12.75	3.12	4,350
100		average 2.33	

Thus it may be seen that with the increase in the occipito-frontal diameter, the difference between it and the biparietal also increased. So from an external occipito-frontal measurement of 11.25 cm., 2 cm. were deducted in order to obtain the biparietal; from 11.50 cm. occipito frontal, 2.25 cm. and from 12 cm. occipito frontal, 2.50 cm.

It will be also seen from the table that the weight increased with the increase in the occipito-frontal diameter. This, of course, varied within wide limits but, in the main, was true. This fact was made use of in estimating the size of the fetus in conjunction with the fundal measurements (v. supra.) and the estimated weight was used as a check on the correctness of the cephalimetry. In this way it was possible, after the study had advanced somewhat, to estimate correctly in several cases, the weight, the occipito-frontal and biparietal measurements of the baby before birth.

The question in regard to the amount of moulding the head will undergo caused some uncertainty. Experiments showed that large heads were firmer than small and that with moderate pressure directly over the parietal eminences, 0.5 cm. was the most that could be expected. The parietal prominences are much more firmly fixed than other engaging parts of the head.

In this series and other cases measured, I have never seen a child successfully delivered when the biparietal diameter was greater than the true conjugate. Several times in flat pelves, however, they were equal. So that moulding, if it does occur in this diameter, can not be depended on as a help.

These methods of estimation of size, together with accurate pelvic measurements to quarter centimeters, and Munro-Kerr's method of relative head estimation give a good working basis on which to determine the size of the fetus and the choice of the obstetric operations, Cesarean section, version, forceps or premature labor. The interruption of pregnancy need not be earlier than the amount of contraction requires and the child need not be exposed to the risks of unnecessary prematurity.

Norris, using Müller's method and inducing labor, has had 2,000 labors without a Cesarean section, and with one craniotomy. Stone and I measured a fetus from time to time in a patient who had been delivered by him in a previous pregnancy by Cesarean section. The pelvis was flat and the true conjugate was estimated at 8.75 cm. The patient presented herself ten days after the appointed time, labor was induced and the child de-

13. Part of this table and part of some experiments in regard to the amount of moulding were published, with permission, in Stone's article. I am indebted to Dr. B. H. Gray for 5 head measurements to complete the 100 cases.

livered by me after a difficult version. The occipito-frontal diameter was 11.50 as estimated before delivery by both methods.

With the application of these methods, induction of labor is the ideal operation in pelves of moderate degree of contraction. Forceps or version, according to the type of the pelvis, then may be done. Ineffectual attempts at delivery and consequent exposure to infection may be eliminated. Cesarean section is made an operation of choice with low mortality instead of an operation of necessity with a large mortality. The babies are allowed to reach the largest possible size before induction of labor and their mortality is consequently lowered. Both mothers and babies are spared the traumatism, infection and mortality resultant from improperly chosen obsterical operations and much vaginal manipulation.

13 West Eighty-sixth Street.

THE TREATMENT OF ASTHMA.*

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Samuel West, in his most excellent work "Diseases of the Respiratory Organs," says, after a careful survey of the various theories as to the nature of asthma:

Asthma must be regarded as a reflex neurosis, the symptoms of which are spasm of the bronchial muscle, of the diaphragm and other inspiratory muscles, associated with more or less of vasomotor disturbance in the bronchi.

While all this is true, it is my opinion that in all cases of true asthma there is also present a true bronchiolitis with exudate of mucin, which is eventually expectorated in the form of Lænnec's perles, each of which may be shown to be a very tightly rolled mass of Curschmann's spirals, which may also usually be found in the sputum. In order to find these, it is necessary to examine the sputum immediately after the attack, as it does not take long for them to disappear, and even when they are present, if the sputum is allowed to stand, they quickly lose their form. I believe they can be found in every case if looked for sufficiently early.

West further goes on to state that the neurosis theory "necessitates the assumption of a peculiar unstable condition of the respiratory centers, the nature of which is at present unknown, but which constitutes the essential predisposing cause of the disease."

Musser, in an editorial note to Hoffman's article on asthma in Nothnagel's "Practice," says:

Asthma is really a neurosis; indeed, a reflex neurosis. This assumes, of course, an abnormal condition of the nervous system, either inherited or acquired, which either limits itself to an increased irritability of the entire mucous membrane surface of the respiratory tract or of certain circumscribed diseased spots, or is a part of a general neurasthenia.

It is unnecessary to multiply quotations; all the modern writers, after more or less extended review of the various theories of asthma, come to the same conclusion, viz., that the disease is a neurosis, the nature of which is unknown.

It is as a step toward the elucidation of this unknown nature and the consequent treatment of the disease, that this communication is presented.

It is important that the diagnosis must be exact, and that the term asthma should not be used as synonymous with dyspnea; and such terms as cardiac asthma, or renal asthma, should not be used.

As an introduction, I relate the following cases:

CASE 1.—A. S. D., male, aged 68, clergyman, was seen Jan. 1, 1903. Family history is clear.

Personal History.—His habits and surroundings are good. He had malaria in early youth; he was early subject to colds. He had nervous prostration in 1876 and 1885. For about 20 years he has been subject to attacks of asthma, which of late have grown exceedingly troublesome.

General Symptoms.—Appetite was good; he had no indigestion. Bowels were constipated. He slept well, except when disturbed by asthma. He had no headaches or dizziness. Pulse was 100, of moderate volume and tension and regular. The vessel walls were very slightly thickened.

Urine: 500 c.c., strongly acid; specific gravity 1,030. There was no albumin nor sugar, but an excess of indican was found. Sediment was made up of urates, and one cylindroid.

Sputum: (Patient not having attack) Mucopus, some bacteria, no tubercle bacilli, no spirals nor crystals.

Physical Examination.—The uvula was long and thick. There was obstruction on both sides of nose by bony spurs on the septum and thickening of the lower turbinates.

Lungs: Emphysema of both lungs in moderate grade.

Heart: Slight enlargement, due chiefly to right ventricular hypertrophy.

Liver: Slightly enlarged; no edema or ascites.

Treatment and Result.—This patient's condition was improved by amputation of the uvula, the use of cleansing nasal douche, saline laxatives, alkaline diuretics, hot-air sweats and regulation of diet and exercise. He finally consented to have his nose operated on. After operation, for about two months he continued the local douche. He has continued the mode of life prescribed, the use of alkaline water, of occasional calomel and saline purge, of hot-air sweat once a fortnight, and has had in the last 18 months only three attacks of asthma, the last one five months ago.

CASE 2.—M. H., female, aged 32, married, baker and confectioner.

Family History.—Clear, except that mother has cancer of breast.

Personal History.—The patient had measles, mumps, pertussis and varicella in childhood; typhoid fever eleven years ago. Menstruation began at 13 and is regular. She has never been pregnant. She has been married eleven years.

Present Illness.—She was always well until in May, 1904, when she began to sneeze and grew short of breath. The attacks increased in violence and frequency.

Examination.—I first saw the patient Dec. 12, 1904; she was complaining of cough, shortness of breath and headache. Her appetite was good; no indigestion; bowels were regular. She complained of persistent headaches. Pulse was 96, small, low tension, regular. Temperature was 98.6. Weight was 210 pounds. Sputum showed crystals and spirals.

Urine. 750 c.c., strongly acid; specific gravity 1,018; urea 12 gm. No albumin or sugar. There was a moderate increase in the amount of indican. Sediment consisted of small and large epithelial cells with abundant urates.

Nose and Throat: There was nasal obstruction of right middle turbinate; the throat was normal.

Heart: There was slight accentuation of pulmonic closure sound.

Lungs: There was some emphysema of both upper lobes, sibilant breathing and a few râles scattered over both sides, especially at bases and in axillæ.

Treatment and Results.—The patient was given an adrenalin spray for nose, to be followed by weak mentholated oil; a dose of calomel and salts; an alkaline diuretic; cold morning bath; hot-air cabinet sweat once a week; restricted diet; regular out-of-door exercise; fresh air; a mixture internally of iodid and bromid of sodium, nitroglycerin, euphorbia pilulifera, stramonium and triticum repens. This last she took but a short time.

Subsequent History.—By carrying out the mode of life prescribed, with occasional recourse to the nasal spray, she had no recurrence of asthma until October, 1905. At that time she

* Read in the Section on Pharmacology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

called a physician who gave her salol, phenacetin and codein, and a cough mixture containing, among other ingredients, Dover's powder, and, later, heroin.

I saw her in November, stopped the medicine, gave calomel and salts, starvation, alkalies and an inhalation of eucalyptus, and for a short time a mixture containing senega, squill hyoscyamus, digitalis, niter, glycerin and tolu.

She improved, this mixture was stopped, and she was again put on a restricted diet, alkalies, sweats, etc.

March, 1906: In March she consulted me with slight return of the asthmatic symptoms. I advised, in addition to my prescription, that she have the sensitive areas in her nose attended to surgically.

CASE 3.—W. R., male, aged 20, employed in office; was first seen April 18, 1906.

Family History.—Mother died at 33 of diphtheria; father died at 56 of apoplexy. One brother has hay fever; one sister has hay fever and asthma; two sisters are living and well.

Personal History.—The patient had measles, mumps, pertussis, varicella and diphtheria in childhood; he had pneumonia three years ago and pleurisy two years ago. For eleven years he has had attacks of asthma. Between attacks he is well, except that he is constipated and is short of breath on exertion.

Examination.—He had had an attack two days before I saw him. At the time of examination he had frequent pulse, regular, small and of moderate tension; temperature was 97. His weight was 128 pounds, seven pounds below average.

Urine: 1,150 c.c., strongly acid; specific gravity 1,024; urea 20 gm., no albumin nor sugar; marked excess of indican. The sediment was composed of urates and crystals of calcium oxalate.

Sputum: This showed some ciliated epithelium and pus cells.

Physical Examination: This showed a deformed chest (present since birth), the left side being depressed and the right decidedly prominent, especially at costosternal junction. The heart was slightly enlarged with hypertrophy of right ventricle. The lungs showed emphysema of both, especially in upper lobes.

Treatment and Results.—Specific directions in regard to bath, mode of life, diet and exercise were given to him, together with regular administration of mild saline laxatives and alkaline diuretics, with a mixture of iodid, bromid, etc., similar to that administered in the preceding case. This patient has made steady improvement, but it is too early to claim any great results.

Remarks.—I have reported this case because heredity might be said to play some part in it, if in any. The man is handicapped somewhat by his deformed chest and his adherent pleura; nevertheless, I look for good results here as in my other cases.

The cases related are selected from a large number observed during a period of twenty-three years.

My conclusions are that there may be a few (but they are very few) cases of a hereditary lack of resiliency of pulmonary tissue, in which slight obstruction to exit of air from respiratory organs tends to produce an emphysema pulmonum, and that this condition interferes with proper oxygenation, and so tends to autointoxication from imperfect metabolism. Most cases, however, which are credited to heredity are due to neglect in early childhood of catarrhal affections of the upper air passages, producing pathologic hypertrophies of turbinated bodies, of Luschka's tonsil and of the faucial tonsils. The excessive strain thus put on the developing pulmonary tissues of the growing organism tends to bring about an emphysema pulmonum, interference with oxygenation, and thus the same autointoxication from imperfect metabolism.

In cases which develop later in life, I believe that the same imperfect metabolism is at fault; that the causes of this imperfect metabolism are to be found in the mode of life of the individual; that among the most common causes are overloading of the gastrointestinal tract with food and drink—especially with food—and imperfect evacuation of the colon; that other factors are a sedentary life and insufficient use of the lungs in a properly oxygenated atmosphere.

In brief, my conviction, based on clinical observation, is that the underlying cause of asthma is autointoxication, due to deficient oxygenation and imperfect elimination; and I believe the results of treatment justify my position. Most cases of asthma begin early in life, and by the time in which they come under the observation of the physician there is already more or less emphysema pulmonum present.

Two of the chief evidences of the autointoxication are the degree of acidity of the urine and the degree of indicanuria present. I have never yet had a case of asthma come under observation in which there was not, when first seen, a strongly acid urine which deposited on centrifugalization urates and uric acid or calcium oxalate, and showed a pronounced reaction for indoxyl sulphate.

From what has been said in regard to pathogenesis, the plan of treatment is simple.

In the first place, all obstructions in the upper air passages should be surgically removed, and, following the surgical procedure, there should be daily or twice daily cleansing of the nose and pharynx with a mildly alkaline cleansing douche. Powerful sprays are to be avoided. If the mucous membranes are especially sensitive, an oil application in the form of vapor is to be applied after the cleansing.

The patient should be encouraged to use pulmonary gymnastics, especially forced expirations. The skin should be made active by baths and friction. The character of the baths has to be carefully considered in each case, and even when one form of bath has been prescribed, it sometimes has to be changed later. As a rule, a cold sponge bath, followed by a brisk rub, is useful in cases in which there is not present too great emphysema of the lungs; even when this is considerable, it is sometimes worth while to try the cold baths. A warm bath, followed by friction, may be given once or twice a week; and in all cases a hot-air sweat occasionally—once or twice a fortnight—is useful.

The bowels should be kept active. At the beginning, and from time to time later, a full dose of calomel, followed by Epsom salts, should be administered. A bowel wash of saturated solution of warm boric-acid solution once or twice a week is to be recommended. The regular administration of laxatives is seldom necessary, but, when it is, a mild saline is the preferable form.

The regulation of the diet is of importance only in so far as that the amount of food should be limited to the minimum compatible with maintenance of health and weight. Any article of food known to disagree should, of course, be prohibited. I generally exclude from the diet of these patients fried foods, pastry, excess of sweets, rich puddings, highly seasoned and made-up dishes, tea, coffee and all alcoholic and effervescent drinks.

For the relief of the immediate attack of asthma, I have nothing new to recommend, and will not waste time by going over different formulas containing iodid, bromid, nitroglycerin and stramonium or belladonna in varying proportions, or in discussing the advantages or disadvantages of inhaling fumes of niter and various vegetable antispasmodics.

My chief contention is that the development of asthma can be prevented by proper attention to the upper air

passages and nutrition in early life; that, if seen later, much can be done to prevent the recurrence of attacks by paying chief attention to correcting any obstruction in the upper air passages, removing any other source of peripheral irritation of the nervous system in the given case, but, above all, by so regulating the intake of food and stimulating the elimination of waste products, that a proper metabolic balance may be maintained. This can be done only by the most careful study of each case in every detail, and by prescribing a mode of life in accordance with the findings.

DISCUSSION.

DR. GEORGE DOCK, Ann Arbor, said that asthma is an extremely important subject because the symptomatic diagnosis is very often made when a different and far-reaching diagnosis could be made, and so he has almost reached the conclusion that asthma is always a reflex condition. He can not, he said, go quite so far as Dr. Rochester in believing that there are many cases due to autointoxication, and especially is he somewhat doubtful of Dr. Rochester's reasons for thinking so, namely, through finding increased amounts of indican, for this occurs so frequently without any asthmatic tendency that Dr. Dock would hesitate very much to look on this as the chief factor in causing asthma. On the other hand, he thinks it highly important to realize the value of the possibility of intoxication in such cases from the point of view of treatment, because in asthma the reflexes are often widespread. He thinks that Dr. Rochester's point about the reflex nature of so-called hereditary cases is very important. It is a striking fact that in the cases we so often see of so-called congenital asthma, hereditary asthma, in young children in which we have sometimes been led to believe there was an acquired hereditary lack of elasticity in the lung tissue, when followed up for ten or fifteen years, show that these patients get over their asthma, and very much more rapidly if they have an operation, as for adenoids. In regard to the practical diagnosis of asthma, Dr. Dock thinks that we should never make a diagnosis of asthma and give symptomatic treatment without having exhausted all possible methods of organic diagnosis. It is surprising to see how many cases of tuberculosis, cardiac disease of all forms, renal disease and other conditions are overlooked as the immediate causes of asthmatic symptoms. Dr. Dock recently saw a physician who had made the diagnosis of asthma in his own case six months ago, who has been treated in sanatoria from Florida to the Canadian border and from the Atlantic to the Pacific Ocean, with precisely the same symptoms, namely, nocturnal dyspnea, and yet he had two quarts of serous fluid in his pleura, with hypertrophy of the heart and contracted kidneys. Dr. Dock is not sure that this man's asthma was entirely due to the fluid in the pleura, but at any rate he was much relieved after the fluid was removed. Curschmann's spirals are among the most misleading things in diagnosis. They are no more true indications of asthma than they are of tuberculosis. Dr. Dock had a case of consumption with beautiful Curschmann's spirals in the early stages, yet there were no symptoms of asthma, and the spirals disappeared later. There was an excess of eosinophile cells in the sputum, in the blood, there were also Charcot's crystals in the sputum. In chronic bronchitis in old people Curschmann's spirals are very often found. The most beautiful Curschmann's spirals Dr. Dock has seen were in cases of tuberculosis with tubercle bacilli in the sputum. It is an interesting fact that Charcot's crystals were described long ago by Förster in cases of chronic bronchitis. It is probable the patient from which the plate was made suffered from consumption or chronic bronchitis in some form. Dr. Dock emphasized the importance of the great reflex origin of these cases to which Dr. Rochester called attention, and the importance of looking for reflexes in all parts of the body, especially in the parts of the body so frequently involved and so easy to explore—the upper respiratory tracts.

DR. M. H. FUSSELL, Philadelphia, agreed with Dr. Rochester and Dr. Dock that the asthma as Dr. Rochester has described it is usually, probably always, a reflex condition. He is sure that there are many cases in which the gastrointestinal tract is not the seat of the cause. He is equally sure, he said, that there are many cases, particularly in children, in which it seems to be an impossibility accurately to fix the cause of this asthma. He cited a case of which he has very intimate knowledge: The patient was a child, a boy, whose parents were perfectly healthy; on the side of neither parent was there any asthma; that child was breast-fed, a perfectly healthy infant. During the first year—the child was about 9 months old—the boy had a furious outbreak of pustular eczema; shortly afterward he had typical attacks of asthma. These were repeated; they were extremely frequent and are still present. Dr. Fussell made a careful examination and had his nose and throat examined by Dr. Cohen. The urine was examined; every possible reflex cause was looked for, and Dr. Fussell is still in entire ignorance of the cause of that child's asthma. The boy is now about 12 years old, living in California, and he still has asthma occasionally.

DR. S. SOLIS-COHEN, Philadelphia, said that he has long taught and that his increasing experience confirms him in his opinion, that asthma is not a distinct entity, but a symptom group, a syndrome, capable of development under the most varied circumstances. He excludes, of course, recurrent pulmonary edema, the result of arteriosclerosis, or of renal disease, or of cardiac disease, which should not be called asthma and does not come under this syndrome. There are many pathologic conditions under which the asthmatic syndrome may arise, and so long as we erroneously seek an invariable causation, so long will we be vainly searching for an identical remedy which does not exist. Dr. Cohen has experienced the dyspneic syndrome in past years during the hay-fever season, and before he had found a remedy, so that he can speak not only from objective, but also from subjective observation. The paroxysm, he said, is unquestionably a nerve explosion which may be classed among the paroxysmal neuroses, but the underlying conditions are very different in many persons. Dr. Cohen would be inclined to place the illustrative case cited by Dr. Fussell in the group of vasomotor disturbances. There are individuals in whom the vasomotor regulation is easily disturbed. Such people under appropriate excitation will develop hay fever, as some people do, or exophthalmic goiter, as do others, or hives or nervous chills, or angioneurotic edema, or pseudo-appendicitis, and so on. The exciting causes are as various as the responses. The worst case of asthma Dr. Cohen ever saw occurred in a man who had had nasal polyps. In that case at least the reflex was not the sole exciting cause. The exciting cause may be emotion or temperature change, or autointoxication, or irritation by ipecac, or emanations of feathers or pollen of grasses or roses or the like. Given the unstable balance there are many excitants which will upset the vasomotor equilibrium and produce vasomotor asthma. In such cases as Dr. Dock has reported there is a mechanical element and the neurotic element only comes in at the last. There are spasmodic cases and emphysematous cases. In chronic bronchitis there is mechanical obstruction to breathing from swelling of the mucous membrane. In relief of the paroxysm Dr. Cohen thinks that we can differentiate the purely vasomotor cases by the instant relief given by the hypodermic use of 10 or 15 minims of a 1-1,000 solution of the active principle of the adrenal gland or less promptly by the use of suprarenalin tablet triturates from 1/40 to 1/20 of a grain on the tongue. Instead of using it hypodermically, the adrenalin or suprarenalin may be instilled into the nasal passages or conjunctival sac, where it can be quickly absorbed and escape the stomach or liver. General treatment resolves itself into a careful study of the individual case, and the use of measures applicable to the particular patient, for his peculiar relations to the existing causes of the syndrome and his idiosyncratic reactions to the drugs employed. Physiologic measures, especially hydrotherapy, pneumotherapy and respiratory gymnastics are, as a rule, of great utility.

DR. G. N. JACK, Buffalo, N. Y., advocates the theory that asthma is not a nerve disease, but a blood disease. He thinks that there is no muscle in any of the air tubes that can,

ever did, ever has, or ever will, nor ever can contract so as to close up the air tubes and produce asthma. He classifies asthma into three varieties: The lymphocytic, the toxic, leucocytic and the anemic. There is poison in the blood, no matter how it gets there, which has to be gotten rid of. The blood dumps this poisonous disintegrated or waste and useless substance somewhere. The kidneys carry off as much as they can. The skin carries off as much as it can. The mucous membrane of the intestines carries off as much as it can. What is left is eliminated through the mucous membranes of the respiratory apparatus into the air tubes. This is in the uncomplicated variety of asthma—not asthma of cardiac origin. It is Dr. Jack's custom to make a thorough clinical investigation as well as a laboratory study of the case, and to adapt treatment according to these findings. He can not turn a man out of his office in five minutes and treat him for asthma; it takes him sometimes two or three hours. He would like to compare the results he is getting by treating asthma from the blood etiologic standpoint with the results that those who are treating asthma from the neurologic standpoint are obtaining. Sometimes a correct diagnosis can be made in one sitting, but when we do determine the exact etiologic cause of the asthma we can stop it in twenty-four hours, and the man need not wheeze again if he understands what we tell him and lives up to our directions. Dr. Jack always substitutes physiologic measures for drugs. He makes a thorough analysis of the blood, urine and stool. Urine containing an excess of indican indicates an intestinal toxemia and a restricted diet. When he finds the blood coagulating slowly he prescribes gelatin. A toxic cadaveric stool indicates the withholding of proteids or meats. Blood giving a pronounced iodophilia indicates the withholding of starchy foods. Blood showing an excess of lymphocytes indicates the withholding of lymphogenous foods, as milk and raw oysters. Dr. Jack said that he is getting results that he is not ashamed of. Dr. Jack said that he has no secrets in his method of treatment, though many physicians think that he has because he gets the chronic cases, especially in Buffalo, with whose heretofore intractable nature other physicians have been familiar. Therefore they marvel at his results. In all chronic cases the nervous system is poorly nourished, and especially in those cases in which the physician's intervention has had little result. The patient becomes despondent and psychic treatment is of importance. Many of Dr. Jack's patients, he said, are referred to him by other asthmatics whom he has treated. His patients find him full of enthusiasm and hope, and they are soon convinced that they can be cured. Owing to this psychic influence peculiar to the specialist, and the sharp and decisive therapy required in the treatment of asthma, it is impossible for the general practitioner to compete with the specialist in the treatment of this condition.

DR. W. J. ROBINSON, New York City, called attention to the remarkable connection between eczema and asthma. There are numerous cases, he said, in which we can predict an attack of asthma by the disappearance of the eczema, and likewise the asthma disappears coincidently with the appearance of eczema. This shows very conclusively that asthma is a blood disease. As soon as the eczema, the toxic matter in the blood, appears on the surface, the attack of asthma is relieved. As soon as the elimination of the toxin is stopped the attack of asthma recurs. He knows several patients, he said, who have given up the treatment of their eczema, because they would rather have eczema than asthma.

DR. W. D. CALVIN, Ft. Wayne, Ind., said that while it is true that asthma relieves coexisting eczema, it is likewise true in all forms of respiratory disease. A patient suffering from pneumonia will be relieved of a coexisting eczema and the same is true of acne. It depends on the changed location of congestion of toxic blood. In asthma there is congestion of the lungs and air passages, and the congestion in the skin consequently being lessened the eruption disappears. This is not only true in asthma and eczema, but is true of nearly all dermatologic conditions when the patient is temporarily suffering from some intestinal congestion.

DR. DELANCEY ROCHESTER, Buffalo, said that the speakers had not convinced him that he is not right in his position. In the first place he believes that we have an autointoxication, the intoxication not necessarily from the intestinal tract, in every case of asthma, and that this autointoxication is largely the effect of metabolic change, chiefly in the katabolism, he is firmly convinced is the truth. In regard to the diagnosis of asthma, he feels that we must make sure of our cases of asthma and that all cases of hay fever are not necessarily asthma. He believes that in all cases of true asthma Laennec's pearls are present at some time during the attack, and that if we find them on Curschmann's spirals we may feel sure of our diagnosis. He did not think of eosinophilia because it has no bearing on this condition. The upper air passages and the sinuses generally should never be overlooked in connection with asthma.

In those cases in which we have interchange between asthma and eczema, as in the case cited by Dr. Fussell, we get good results if we pay close attention to the intestinal tract; these patients are relieved by bowel washing and attention to diet. Dr. Rochester believes in the washing out of a baby's bowels, even when it is fed at the mother's breast, and if necessary administering certain amounts of alkalies. He believes, he said, in the acid origin of asthma, and that we must stimulate elimination as well as the intake of the patient. He never speaks of any specific remedy, and agreed with Dr. Cohen that we can not have any specific remedy. There are various reflex nervous sources of attack, but there is at the bottom of asthma this condition of autointoxication, and if we pay attention particularly to that and take into account the various nervous reflex sources of attack secondarily we will get our results. There are very few children who have obstructions in their air passages alone. Of course, all such obstructions should be removed, but if one does not go ahead and treat the patient after the growths are removed success can not be looked for. It is the persistence of treatment after the removal of obstruction from which one gets results. The case Dr. Rochester reported illustrates this point: The man went a year without operation; he had relatively few attacks under treatment. He had had asthma for twenty years and the attacks were increasing in frequency, coming on at least once a week right along. By the constitutional treatment alone he was relieved and after operation he was entirely cured.

THE QUININ TREATMENT OF CHOLERA.*

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In this article, using the inductive method of reasoning that H. C. Buckle long ago characterized as peculiarly the American method, I shall endeavor to show that:

1. Rightly administered, quinin has always proved the best remedy in Asiatic cholera.

2. It has only failed to bring the best results when improperly used as to dosage or method of administration.

3. It is just the remedy, of all others, from which we should expect these results.

My own experience with the disease was in Columbus, Ohio, during the epidemic of 1873 in the Mississippi Valley. There were here 138 cases of the disease, with 90 deaths; a mortality of 65 per cent. Of cholera of statistic grade, I had 5 cases, all terminating in recovery. Of choleraic diarrhea, mostly of the intermittent (early morning) type mentioned below, I had some 30 cases during the time of the prevalance of the disease. It had been my fortune in the earlier years of

* Read in the Section on Pharmacology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

professional experience to see so many patients with so-called sporadic cholera and bilious diarrhea die under the calomel-opium-acetate of lead treatment that for some time in all serous diarrheas, including cholera infantum, I had made use of quinin with better results. Add to this the fact that the epidemic came unheralded; was mistakenly diagnosed at New Orleans, where it entered in February, 1873; at Nashville, at Cincinnati, where the first cases were called "sporadic cholera" or "cholera morbus," and I have no apology to offer that my first report on the subject in the Cincinnati *Clinic*, November, 1873, should bear the title "Cholera in Columbus, Ohio," with a sub-title, "Intermittent Diarrhea," with cases apparently selected according to my bias at the time. The largest body of medical men in Ohio taught their materia medica by any one man during thirty years past, have been fully instructed in my belief that instead of being the despair of the profession, cholera rightly treated is a highly curable disease. I do not see how it happened that none of my former students were in the Philippines during the recent epidemic in the islands, nor how mention of the treatment in two of the most popular works on materia medica and therapeutics should have escaped the notice of army surgeons there at the time.[1]

The first recorded use of the remedy comes, as it should, from India, where in 1762 two unnamed physicians, under certain conditions, recommended the use of bark in cholera and claimed to have had good results from the treatment.

In the London *Lancet*, Feb. 1, 1832, Mr. C. Negri reports the cases of two patients recovering under the use of bark and mentions the fact that true choleraic diarrhea often assumes an intermittent form. It often did in the epidemic in the Mississippi Valley in 1873, and I doubt not was one of the causes that led Dr. Henry to use quinin in the Tennessee penitentiary with the remarkably convincing results to be recorded later.

As a complete history of the early use of quinin in treatment of cholera is to be found in the *Medical Record* of April 29, 1893, I shall hereafter mention only notable results, following as nearly as may be the chronological order of their occurrence.

Dr. Bluff, Aix la Chapelle,[2] reports 25 cases, with 4 deaths, 16 per cent. mortality, in an epidemic in the above named city, where of 427 patients under other treatment 222 died, being the usual mortality of the disease in Europe and America of 52 per cent. Dr. Bluff gave 2 grains of quinin every fifteen minutes till the disease was controlled. His four deaths are sufficiently accounted for by the varying conditions of his patients when first seen by him, "only one being a young person in robust health previous to the attack."

Dr. Kossler[2] in the same journal reports from Posen 30 cases, with 2 deaths, a mortality of 6.6 per cent. His better results came from the fact that while he gave only 6 grains of the sulphate of quinin every two hours at first he "afterward grew bolder, and in the most dangerous cases gave the remedy every fifteen minutes—nay every ten minutes, in the same doses." Evidently the drug was not absorbed, but acted as an intestinal disinfectant.

Dr. Antonio Putelli,[3] Venice, speaks most highly of his results with his eight-grain pills of the sulphate of quinin, but gives no figures, nor does Dr. Charles W. Bell[4] in his lectures at Manchester, England, though he mentions "5,000 cases cured by quinin in India." It was his report that attracted most attention and which is most frequently mentioned by later writers.

Dr. B. F. Sargent[5] says: "This article deals only with the treatment we pursued in collapse of cholera, . . . typical unmistakable cholera of gravest form . . . we say nothing of the simple diarrhea that recovered under ordinary treatment." He gave 10 grains an hour and says, "smaller doses were useless." He reports 17 cases with 4 deaths, a mortality of 23.5 per cent.

Dr. Strange[6] reports 19 cases, with 4 deaths, a mortality of 21 per cent. He mentions, as most do, the prompt cessation of vomiting. Recoveries were slow, the doses of quinin being too small, only 2 grains every two or three hours. There is no record of symptoms and, judging by results, the cases could not have been so uniformly severe as in Dr. Sargent's list.

The first record of administration of the remedy otherwise than by mouth occurs in the leading article in the *Medical Times and Gazette*, London, October 8, 1853, where it is stated that Mr. Spencer Wells injected a solution of quinin into the veins in 4 cases, and that Dr. E. A. Parks did so in two others. All the patients died, as they most properly should. The germ, as we now know, infests only the intestinal tract, and given intravenously or hypodermically, quinin escapes almost wholly by the kidneys.

Dr. Thomas W. Gordon,[7] Georgetown, Ohio, reports 18 cases occurring in that vicinage the preceding summer. (Cholera persisted in Ohio from 1849 to 1854, inclusive.) Of these, twelve patients were treated with quinin, all recovering. Of six patients treated by other methods, five died. Dr. Gordon gave quinin sulphate at the rate of 10 or 12 grains an hour.

The Spanish and French records are of little moment. The latter mention their fractional grain doses as checking vomiting however.

With the exception of the Nashville, Tenn., epidemic of 1873, the most important testimony of all is that borne by Dr. J. L. Pompe Van Meerdervoort.[8] He says: "During my residence in Japan (1857-1862) I passed through three different fearful epidemics of cholera. In these three epidemics I treated personally 2,467 patients, all without doubt, affected with cholera. Of this number 1,746 recovered and 721 died." His mortality was 29 per cent. He was stationed at the time in Nagasaki, a city of 60,000 inhabitants, and was the only physician in the city. He complains very justly that he "was not called in many cases until the disease was well advanced and with but one-sixteenth of his cases in hospital, the remainder scattered about the city, he had no control of the epidemic." "All he treated were severe well-developed cases of cholera—not cholerine." I have shown elsewhere that under more favorable circumstances his mortality should not have exceeded 15 per cent. His treatment was excellent, at the rate of from about 7 to 14 grains of the sulphate an hour, according to the severity of the case under treatment. In a preceding epidemic in Japan (1854) the mortality had been 65 per cent.

Dr. Schlömann[9] at San Antonio, Texas, in 1866, had 223 cases of cholera and cholerine, (he excludes asphyc-

1. None of these authorities was known to me until after I had myself used the remedy successfully in the epidemic of 1873.
2. Jour. Chir. and Augenheilkunde, April, 1833.
3. Ann. Med. Universali, 1836.
4. Quoted in the New York Scalpel, July 25, 1849.
5. Phil. Med. Exam., Sept., 1854.
6. Prov. Med. and Surg. Jour., 1849.
7. Ohio Med. and Surg. Jour., 1853.
8. Nederl. Tijdsche Geneesk, Amsterdam, 1865.
9. Berl. klin. Wochschr., Sept. 4, 1871.

tic cases) of which 220 patients recovered and three died. His mortality was 1.3 per cent., an almost incredible result but for the latest news from Van, Asiatic Turkey. Dr. Ussher says, "Our cholera was the real cholera of the Ganges delta," but excludes his collapsed cases. He gave from 8 to 15 grain doses, "repeating after the next stool" or at two or three hour intervals thereafter. In my judgment, with the exclusion of the already collapsed, the treatment ought to bring Dr. Schlömann's results.[10]

Professor Botkin[11] gave 5 grain doses three or four times a day, with a mortality of 17.3 per cent. He occasionally gave an 8 grain dose hypodermically which, of course, did no good whatever. In Sajous' Annual[12] his cases are reported at 994, with a 20.7 per cent. mortality. This would imply that he still gave but 15 or 20 grains of quinin daily by mouth, or more frequently resorted to the hypodermic syringe which would only annoy his patient. His cholera drops contain only from 1½ to 2 grains in their usual dose of from 15 to 20 drops. The mention of "clinic" is, of course, suggestive of hospital treatment and the results altogether suggest that the dosage of 1871 rather than the "cholera drops" of this later report was used.

The most remarkable results, however, were obtained by Dr. George P. Henry, physician to the penitentiary at Nashville, Tenn., in 1873. He had about 500 prisoners and attachés in the prison and says, that "almost every man, woman and child there was afflicted by the epidemic." Of these he says 350 were of the statistic grade of severity. For a period of twenty-six days in June, 1873, he treated an average of 57 cases daily without a death. Of these only a small part could be accommodated in hospital; the greater number were in cells, two in a cell, with 250 feet of air space, ventilated through a fourteen inch grating, and with the bucket to receive the discharges inside the cell. In the same epidemic, in Columbus, out of 27 cases in the Ohio penitentiary, 21 patients died, 81 per cent. mortality. Dr. Henry's diagnosis was scorbuto-malaria. His treatment consisted of fresh vegetables and sauerkraut, with a mixture containing some useless drugs, but with from 20 to 30 grains of quinin to be taken in about four hours, one patient only, who received no quinin, dying. Before ordered back from their camps to prison there had been 40 cases with 24 deaths, a mortality of 60 per cent., and these same convicts introduced the disease into the city of Nashville, from which 1,000 persons were said to have died. After counsel came in from the city, corrected the diagnosis and changed the treatment, fifteen patients died, the mortality among cases of statistic grade being 4.2 per cent.

The first physician to use the treatment in the thirty-three years that have elapsed since I treated my own cases in August, 1873, was Dr. Clarence D. Ussher,[13] a medical missionary of the Congregational Board stationed at Van, in Asiatic Turkey, in the epidemic of the winter of 1904-5. In this epidemic he estimates the number of deaths in the city of Van at 2,000. From other missionary reports there were, in Persia, at stations near by, from 4,000 to 5,000 deaths at Hamadan, at Urumia 3,200 deaths, and at Tabriz from 6,000 to 10,000 deaths. Doubtless these losses are somewhat exaggerated, but we can not run an extensive epidemic of cholera through a hospital even, let alone a laboratory. In his own practice in the mission hospital, and in the city, Dr. Ussher lost all the patients he treated during the first week; 100 per cent. mortality. At midnight, Saturday night of that week, following the recommendations of my writings (of which he had found notice in Sajous' Annual, 1896,) he began to treat his patients with 10 grains of quinin hourly, with the result that in the succeeding five or six weeks of the epidemic he lost but two patients. In a letter received by me of later date than his communication in THE JOURNAL of the American Medical Association, he says that he had partial records of 157 cases, but does not state whether this number pertains only to those patients treated with quinin, or includes those who died under other treatment during the first week of the prevalence of the disease. Allowing that the very large number of fifty-seven were of his first week's patients, there would still remain 100 patients treated by quinin in the succeeding weeks with only two deaths; a mortality of 2 per cent. He had no nurses but day laborers, called away from their usual avocations to treat the sick, without sufficient training in their new employment to take pulse or temperature, or to note other symptoms.

In a paper[14] published in 1894 I gave the above, to date of publication, with scattering reports where the numbers were few, including my own 5 cases, of statistic grade of severity.

	Cases.	Deaths.	
Total to above date...	3,146	753	
Prof. Botkin	994	206	Estimated from 20.7 per cent. mortality.
Dr. Ussher.....	100	2	
Total	4,240	961	Mortality 22.9 per cent.

According to Professor Koch's table of agents inhibiting multiplication of the spirilla, quinin has the greatest effect of all practicable remedial agents in a strength of 1 to 5,000. From experiments made at my request by Dr. J. C. Graham, at the time bacteriologist of Starling Medical College, in a strength of 1 to 2,500 it disinfects cultures in thirty minutes, "beyond which time no growth occurred." This seems to give sufficient reason for the very favorable results shown in the above table. Dr. Henry had complete control of his cases in the penitentiary, with no loss, under quinin, for nearly four weeks. It was after the diagnosis had been corrected and treatment changed that the fifteen patients died; giving the mortality 4.2 per cent. The circumstances mentioned by Dr. Van Meerdervoort as he says, "gave him no control of the epidemic" and as stated elsewhere, his mortality of 29 per cent. should be reduced to 15 per cent. It is possible that in any extensive epidemic the mortality may reach as high as 15 per cent., but that result, at least, should be confidently expected. When attendance is promptly and efficiently rendered a much less rate of mortality should be looked for. When my attention was called to Professor Stille's list of 19 cases with 12 deaths occurring on board the British hospital ship Belleisle, I promptly stated that the quinin must have been given hypodermically, as no such rate of mortality as 63 per cent. had ever been known when the remedy had been given in sufficient doses by the mouth. Later investigations proved this to be true. Before the recent epidemic in the Philippines was over I knew that the remedy was not being used and called the attention of what I supposed to be the proper authorities to the fact, but with no result whatever.

10. See my analysis of Dr. Henry's experience in the Tennessee penitentiary in the epidemic of 1873, in which epidemic I had my own experience, New York Med. Record, April 29, 1893, New York Jour. of Med., Aug. 18, 1894.
11. Wien. Med. Presse, 1871.
12. Vol. II, p. 228, 1896.
13. THE JOURNAL A. M. A., Feb. 3, 1906, p. 361.
14. New York Journal of Medicine, Aug. 18, 1894.

By carefully reading the authorities above quoted it will be seen that the remedy given at the rate of 10 grains an hour of the sulphate gave the best results. The bisulphate is more soluble and more likely to be absorbed.

For the purpose of disinfecting the intestinal tract the remedy should be given moistened only with a little water and not in solution at all. This is my latest judgment. Slight symptoms only of cinchonism have been observed when the comparatively insoluble sulphate has been used. Larger doses than 10 grains have been given, but are more likely to be followed by vomiting. The fear of severely ill effects from the doses recommended, may be set aside, as the lethal dose lies somewhere beyond one ounce of the drug, and moreover quinin is antiemetic in cholera. Major-General Leonard Wood told me, that for malarial symptoms, he had himself, several times while in Cuba, taken doses of 75 grains of quinin. He promised to use it when he went to the Philippines, but about one year since wrote me that he had not had, to his knowledge, a case of cholera in the province under his command. There are yet scattering cases in the Philippines to which I have called his attention, but without any report as yet.

(The use of quinin in cholera is mentioned in Wood's work on therapeutics, eighth, ninth and tenth editions; in all recent editions of Shoemaker's "Materia Medica and Therapeutics"; and in the latest edition of Potter's "Materia Medica, Pharmacy and Therapeutics" there is fullest mention of all.)

DISCUSSION.

DR. N. R. COLEMAN, Columbus, Ohio, stated that the sum of our knowledge of the treatment of cholera, to date, shows that where quinin has been used the mortality has been lowered. If cholera should ever break out in this country this method of treatment should be kept in view, not only by practicians, but by those engaged in teaching. There is no question, he said, that quinin is one of the best intestinal antiseptics.

DR. A. W. BAER, Chicago, asked Dr. Fullerton whether he stated that the maximum dose of quinin is an ounce.

DR. FULLERTON answered that an ounce is not the minimal dose.

DR. BAER referred to a case verbally reported from the Nashville Military Hospital during the war where an ounce of quinin was given during twenty-four hours for tetanus. The patient did not die of tetanus, but from the effects of the quinin.

DR. E. B. FULLERTON, Columbus, said that he has treated cholera and has seen all the symptoms subside after administering 15 or 20 grains of quinin.

THE COMING REVISION OF THE PHARMACOPEIA OF THE UNITED STATES.*

M. I. WILBERT, PH.M.
Apothecaria at the German Hospital.
PHILADELPHIA.

While therapeutic measures, other than drugs and medicines, are very properly receiving an ever increasing amount of attention we must not lose sight of the fact that drug therapy can not, as yet, be considered among the practices that we can well do without. From evident indications it is probable that drugs and medicines will continue to occupy a very important position in the prevention as well as in the treatment of disease for decades, if not for centuries to come.

If the continued need for drugs and medicinal preparations be admitted to be evident it will readily be acknowledged that the need for a more systematic and detailed knowledge of the nature, uses and limitations of the several substances that are used in drug therapy can not be questioned and will, therefore, serve as an apology for introducing what may appear to some to be a hackneyed and uninteresting subject for discussion.

HISTORICAL REVIEW.

That the need for generally recognized descriptive lists, or treatises, of the materials used in medicine, manifested itself at an early period, in the history of the human race, is evidenced by the still existing works by Dioscorides and by Pliny and also by the much older Egyptian scroll usually referred to as the "Papyrus of Ebers." The more modern, and more distinctively pharmacopeial works, such as I propose to discuss in connection with this paper, appear to have had their origin with the Arabian school of medicine, about the end of the eighth century, and the earliest of the officially recognized pharmacopeias, in Europe, is probably to be found in the formulary published by the medical school of Salerno, and recognized by an imperial decree of the Emperor Frederic II, during the twelfth century.

To refer more specifically, however, to the history and the development of pharmacopeias in our own country, it may be interesting to you to know that it is just a century ago that James Jackson and John C. Warren, two of the most eminent and most respected medical men of the city of Boston, in pursuance of their instructions, as a committee of the Massachusetts Medical Society, prepared the manuscript for the first American pharmacopeia, and it is now ninety-nine years, almost to the day, since the completed manuscript was presented, at a meeting of the Councilors of the Massachusetts Medical Society, for publication. This interesting and in many respects unique volume is generally recognized as being the origin of pharmacopeial work in this country and it is perhaps not to the credit of the present, or of preceding, generations of medical men to point out that, if we expect to make reasonable progress in the development of a more satisfactory and a more generally acceptable materia medica, we must of necessity go back and readopt the principles and the ideals aimed at by these early pioneers in pharmacopeial work.

The opening paragraphs of the preface of the Pharmacopeia of the Massachusetts Medical Society contain several important suggestions, on the significance and the uses of a pharmacopeia, that may well serve as a text for what I wish to say to you to-day. In this preface Drs. Jackson and Warren assert:

> It is the intention of a Pharmacopeia to point out those articles whose properties entitle them to be employed for the cure of diseases, with the best methods of preparing them, and to supply the preparations and compositions of them with names by which they may be known or referred to without constantly repeating a description of their ingredients.
>
> Such a work is mutually convenient to the physician and apothecary. As it is the business of the physician to prescribe, and of the apothecary to prepare medicines, the physicians as a body ought to point out those articles of medicine which they shall ordinarily employ, and the standard preparations of them.

It will not be necessary for me to discuss at length how far and how physicians, as a body, have failed to take advantage of their evident duty to "point out those articles of medicines which they shall ordinarily employ," particularly as the direct results of this neglect or failure are so evidently apparent on all sides.

* Read in the Section on Pharmacology of the American Medical Association at the Fifty-seventh Annual Session, June, 1906.

In the matter of revising the now well established Pharmacopeia of the United States the members of the medical profession have, for five decades or more, taken an ever decreasing interest, and the selection of the content of that book, as well as the revising of the text and of the descriptions, is now practically left entirely in the hands of pharmacists and of a limited number of medical men who are directly interested in the book, either as teachers or as authors of text-books on therapeutics or materia medica.

The increasing neglect of the Pharmacopeia, on the part of members of the medical profession, appears to have led to a corresponding increase in the number of articles admitted or retained, as official, and this superabundance of material, much of it antiquated or useless, serves to detract materially from the proper appreciation to which the book is rightfully entitled. Size and numbers are so persistently taken to be synonymous with completeness that it need not surprise us to learn that with a very few exceptions the Pharmacopeia of the United States now contains from 20 to 50 per cent. more titles than any of the other known pharmacopeias.

That this superabundance of supposedly useful articles of the materia medica must be considered to be a matter of doubtful utility will be more apparent when we consider the uses to which such an authoritative list or pharmacopeia might properly be expected to be put.

In addition to being of value as an indication of "those articles whose properties entitle them to be of use in the treatment of disease a pharmacopeia should also serve as a guide to the pharmacist in making the preparations that are enumerated and described in its pages. A book of this kind should also serve as a text-book or guide to the students of medicine and of pharmacy.

PLEA FOR A MORE LIMITED MATERIA MEDICA.

It is in connection with its possible uses as a text-book for the student of medicine that a pharmacopeia containing a reasonably limited number of articles would be of greatest value. It will readily appeal to all that with the numerous branches that are now being taught in medical schools, and the accompanying relegation of materia medica as a subject of secondary importance, it must be practically impossible to impart to medical students any appreciable amount of practical information in connection with the 4,000 or 5,000 different medicinal substances enumerated in some of the so-called text-books on materia medica. If, on the other hand, instruction in materia medica could be confined to 400 or 500 widely used and thoroughly well established drugs and preparations the student could be given a thorough grounding in the uses and in the limitations of these fundamentally important articles, he would have little that he could afford to forget and the knowledge that he has would serve him as a basis for rational elaboration.

The more general acceptation of a more limited or basic materia medica would also lead to a more evident appreciation of the need for international uniformity in connection with the strength of potent medicaments. With the ever increasing facilities for inter-communication between widely separated peoples this need for greater uniformity in all lines of research is becoming more widely appreciated. In no branch of human progress should this tendency for unity of effort receive more hearty encouragement than in connection with the science of medicine, and in no department of this science is the need for unification more pressing than in connection with the materials that are used, or to be used, in the prevention or the treatment of disease and the accompanying endeavors to prolong human life.

PLEA FOR INTERNATIONAL UNIFORMITY.

In this connection it will not be necessary for me to recount the several efforts that have been made to secure greater uniformity in the strength or the composition of the materials used as medicine; suffice it to say that little or nothing of practical importance was accomplished until September, 1902, when the "International Conference for the Unification of the Formulæ of Potent Medicaments" was convened in the city of Brussels, Belgium, with thirty-one officially accredited delegates, representing sixteen of the leading countries of the world.

Despite the fact that this conference was held practically three years before the eighth decennial revision of the Pharmacopeia of the United States was published, and that the committee on revision had received definite instructions, from the National Convention, to keep in view the desirability of uniformity in the strength of potent remedies, which are in general use among civilized nations, the members of the committee on revision did not see their way clear to adopt fully all of the provisions of the resulting protocol and the Pharmacopeia of the United States, in place of being one of the first to fully endorse this admittedly desirable innovation, will probably be the last, of those represented in the conference, to adopt the several provisions *in toto*.

While it is true that the differences now existing are more matters of detail than of vital importance, it is nevertheless to be remembered that matters of minor detail frequently appeal more strongly, even to the apparently well informed, than do matters of greater moment.

To cite but one of the numerous differences, now existing, I may refer to the variation in nomenclature. Here the members of the committee on revision not alone ignored the suggestions made by the International Conference, but even went out of their way to introduce in connection with fluid extracts a lexicographic monstrosity that simply adds one other to the already too numerous minor differences of names and titles.

Up to the present time the provisions of the protocol have been fully adopted in the recently published Pharmacopeias of Spain, Austria and Holland and it is announced that they will also be included in the prospective Pharmacopeias of France, Belgium and Switzerland, to be published in the course of the current year. It may be added, in passing, that the protocol of the International Conference includes three chemical substances, ten crude drugs and twenty-six pharmaceutical preparations, or a total of thirty-nine titles, apart from the general provisions of policy or principle in pharmacopeial work.

COÖPERATION OF PHYSICIANS NEEDED.

The history, the uses and the needs of the pharmacopeia would all appear to indicate that the medical profession of the country should take a more active interest in the content and in the revision of the Pharmacopeia with a view of making that book, as it really should be, a reflection of the practice and the ideals of the science of medicine in the United States.

To have the Pharmacopeia used as a reference book, by physicians, would necessitate that it be published as a manual or treatise on materia medica, as it is out of reason to expect that a book, of the technical nature that a Pharmacopeia must necessarily be, could be made

to appeal to physicians or be useful as a reference book on materia medica. On the other hand, if physicians are to be led to take an interest in perfecting their own materia medica, and are expected to eliminate from the Pharmacopeia obsolete or useless materials they should of necessity have access to some ready reference list containing only pharmacopeial articles, their medicinal uses and doses.

CHANGES SUGGESTED.

A book of this description would be of little or no use to the apothecary who must have technical descriptions and detailed directions to insure uniformity of materials. It is evident then that among the innovations to be introduced by the present, or at least by a succeeding committee on revision, should be the publication of two distinct books: The Pharmacopeia proper for the use of apothecaries and druggists, and a manual of materia medica for ready reference by physicians.

Among other necessary changes I might suggest the revision of the Pharmacopeia before the decennial meeting of the National Convention, the elimination of the secrecy that has hedged in and hampered former revisions of the Pharmacopeia, and the reduction of the number of members of the committee on revision to a directly responsible board of editors, composed practically of the chairmen of the several sub-committees.

The first of these changes could, and very properly should, be introduced by the present committee on revision. The publication of a small handbook of the materia medica of the Pharmacopeia would enhance the use and the value of the Pharmacopeia materially and go far toward securing greater uniformity in the medicinal products now available.

The practical revision of the present Pharmacopeia, in advance of the National Convention, is an undertaking that is not alone authorized but even expected under the resolution instructing the committee to "report a complete plan for the revision of the Pharmacopeia at the next decennial convention."

The fact that such a plan could not be considered final would permit of widespread publicity, in a special bulletin, or in medical and pharmaceutical journals, and thus insure that prospective delegates to the decennial convention come well prepared to discuss and to act on the more important features of the revision. The need for reducing the number of the members of the committee on revision is one that has appealed to many, and particularly to members of the revision committee itself, and is perhaps evidenced by the increasing delay in the publication of the past three or four revisions.

The work that is now being done by an unwieldy committee of twenty-five or twenty-six members residing in widely separated sections of the country could readily be supervised by five or six specialists as responsible editors of the several departments of the Pharmacopeia and the credit for excellence or the censure for shortcomings would be more readily meted out to the one more directly responsible. Such an innovation would of necessity presuppose a more active interest in the Pharmacopeia on the part of all who are in any way dependent on the use of it, and the ultimate success of the change would depend very materially on the coöperation and the support given it by the medical practitioners of the country.

In further explanation of this suggestion it may be pointed out that the American Pharmaceutical Association, for nearly half a century, has taken an active interest in pharmacopeial work and the members of the several standing committees on the revision of the Pharmacopeia have not alone contributed materially toward improving the several decennial revisions but were also instrumental in bringing about the changes which established the Pharmacopeia of the United States as the peer of national pharmacopeias.

The American Medical Association on the other hand has so far contributed little or nothing toward the work and has not even indicated, as it properly should, what articles might preferably, be included. The collection of data, on the desirability of including certain widely used drugs and preparations, and of omitting such as may be of lesser importance, is a duty that would appear to come particularly within the province of this association, organized as it is to represent the better class of medical practitioners in all sections of the country. Minor details, as to the manner in which information is to be collected, could well be left for the responsible officers of the association to arrange. That this information should be collected, and that the American Medical Association, as an organized body, should take a more active interest in the revision of future editions of the Pharmacopeia of the United States is for you, as members of the Section on Pharmacology and Therapeutics to suggest.

CONCLUSION.

I recapitulate briefly the more salient features of the proposed innovations:

To be really national in character, the Pharmacopeia should receive the active coöperation and support of physicians as well as pharmacists.

The content of the book should be indicated by physicians, and should be limited to an enumeration and description of articles whose properties and uses are well established and generally recognized.

The work of revising the Pharmacopeia should be practically accomplished before the meeting of the National Convention, and the several changes, as proposed, should be given widespread publicity.

As in the past, the National Convention should act on the general principles that are involved and entrust the more minor details to the Committee on Revision and the Board of Trustees.

The supervision of future editions of the Pharmacopeia should be entrusted to a much smaller committee of directly responsible editors.

Finally, and perhaps of more immediate interest and importance, The American Medical Association should institute a standing committee on the Pharmacopeia for the two-fold purpose of collecting information to be used in connection with the revision of the Pharmacopeia itself and of popularizing the Pharmacopeia and its content with members of the medical profession.

DISCUSSION.

DR. O. T. OSBORNE, New Haven, Conn., thinks that no one is quite so disappointed with the Pharmacopeia as are those who teach practical therapeutics and materia medica. The profession has been talking, for years, against ordering a proprietary preparation when the Pharmacopeia has just as good a one; also against ordering a drug by its trade name when there is a Pharmacopeial name. The new Pharmacopeia, he said, absolutely defeats this object. Students can not be compelled to write on prescription blanks some of the names used in the Pharmacopeia. The bulk of material contained therein makes it almost impossible for any student to familiarize himself with it. Dr. Osborne has long contended that the Pharmacopeia should be in a convenient form and size. It should not be a great, unwieldy volume of instructions to the pharmacist in which medical men are not interested. They can have as large a dispensatory as they see fit. Then,

the answer comes, there should be some particular method for the pharmacist to follow in making all preparations. How many druggists, he asked, make these preparations? The majority of the preparations are made by manufacturing concerns, therefore that part of the Pharmacopeia can not be of much use to pharmacists. In the next place, it was unfortunate leaving out of the Pharmacopeia the preparations under the drugs. The doses in many cases have been carelessly put in. Why, he asked, depart from the metric system? Physicians talk of it, insist on it, the Pharmacopeial commission insisted on it, and then proceeded in such a way as absolutely to defeat the object of the metric system. There is no use in saying a dose is 4 c.c. when 5 c.c. is the dose it should be. It is impossible to teach students 0.025 of a gram or 07.5 cgrms. On the other hand, take acetanilid: The dose given is 37.5 cgms., much too large, while the dose of Pulvis Acetanilidi Compositus is positively dangerous and should never be repeated in the same day. Dr. Osborne hopes that a committee will be appointed to report at the next meeting on the recommendations of this paper, and to devise means of getting in closer touch with the commission for 1910.

DR. WM. J. ROBINSON, New York City, asked who is responsible for the dosage in the Pharmacopeia?

DR. C. S. N. HALLBERG, Chicago, said that the physicians are responsible.

DR. WM. J. ROBINSON, New York City, said that it was most likely the absence of physicians or at any rate the absence of real practicing physicians. All, he said, were looking forward expectantly to the doses in the Pharmacopeia, thinking that at last some order would be introduced into the chaotic condition of posology, but the doses in the Pharmacopeia have made confusion worse confounded. For instance, the average doses of cinnamon and of zinc oxid as given in the Pharmacopeia are exactly alike, namely, four grains. The physicians know that cinnamon can be given in 15 and 30 grain doses, and, if judging by analogy, he decided to give a similar dose of zinc oxid, what, asked Dr. Robinson, would be the result? From a careful study of the doses in the Pharmacopeia it is apparent to Dr. Robinson that the doses were not given by a practicing physician, if by a physician at all, and it is no wonder that the medical profession does not want to know anything about the Pharmacopeia, for it contains little or no information of value to physicians and much of the information it contains is not information, but misinformation.

DR. S. SOLIS-COHEN, Philadelphia, said that it is highly important that the methods and results of Pharmacopeial revision be considered carefully. The manner in which the revisions can be bettered is by giving greater weight to the views of physicians. He urged the appointment of a committee to study the whole subject leisurely and deliberately and to present a well-considered recommendation at the next meeting.

PROF. H. P. HYNSON, Baltimore, does not believe that the Pharmacopeia is a controlling influence in medical practice; the Pharmacopeia should be the servant of medical men. All the Pharmacopeia should be, and all it can expect to be, is a standard. If there is any need for a larger number of preparations there is no reason why the National Formulary should not furnish them. Pharmacists want the Pharmacopeia to offer more standards, especially the standard maximum dose. If physicians were in drug stores and knew the trials pharmacists have on this score they would appreciate the importance of this point. The druggists of the country do not want the Pharmacopeia restricted, unless the National Formulary is adopted, which will be satisfactory as an auxiliary standard.

DR. M. G. MOTTER, Washington, D. C., said he thought that Dr. Cohen wished to imply that the committee of revision was inclined to disregard the views of the medical profession. The facts of the case are utterly different. The call for the eighth revision convention was sent out to all the medical societies of this country with the request that they present suggestions, and there were only four medical societies which did present such reports. These were: Colorado Medical Society, Medical Society of South Carolina, New York State Medical Society, New York Academy of Medicine.

DR. S. SOLIS-COHEN, Philadelphia, declared that on the whole he considers the new Pharmacopeia a splendid book. It can be improved and made more practical when pharmacists pay more attention to the opinions of clinicians, and when medical men are more willing to assume their share of the actual burden of revision. The object of the Pharmacopeia is to prescribe a standard. Physicians do not have to use anything or to teach anything simply because it is in the book. Each man makes his own selection and will continue to do so, whether the number of admitted articles be less or more. On the other hand, omission of drugs or preparations in actual use by any considerable number of practicing physicians leads to confusion and difficulty. Dr. Solis-Cohen's criticisms were more of omissions than of commissions.

DR. REID HUNT, Washington, D. C., referred to the importance of the Pharmacopeia as a legal standard. While the practitioner does not care very much about the methods of detecting impurities which may be present in drugs, this is very important from the health officer's standpoint. The Pharmacopeia has to serve as the standard for so many people that it must be looked at from many sides, and its importance as a legal standard is increasing rapidly. The medical man wants a small, compact book, containing only the drugs he uses, yet throughout the whole country so many of the other preparations are being used that there ought to be some sort of a standard for them also. The Pharmacopeia, Dr. Hunt said, is becoming more and more the legal standard by which pure drug laws are enforced.

MR. M. I. WILBERT, Philadelphia, said that it is impossible to discuss so wide and important a subject in any reasonable amount of time that could be given to it. The appointment of a committee to consider the recommendations at length, he thought a good move. The criticism that the Pharmacopeia is too diffuse for medical men, is a just one, if future generations of medical men are to be instructed in but a few, or comparatively few, subjects. This need for restricting the Pharmacopeia is illustrated by the expansion of medical schools. For instance, the medical department of the University of Pennsylvania less than thirty years ago had 6 branches and 8 instructors; at present it has 21 departments and 137 instructors, and materia medica plays but a minor part. From being the one-sixth of the total instruction thirty years ago, it is the one twenty-first today, and is given secondary consideration at that. Mr. Wilbert is in favor of limiting the official preparations to a reasonable number that can be fully standardized and controlled. The question of dosage is an important matter, from the pharmacists' point of view, but it is readily demonstrated that doses are but relative. A normal dose for one patient might be a huge dose for another patient, so that any attempt at stating a maximum would be exceedingly unfair and would cause no end of trouble.

MALARIAL HEMOGLOBINURIA

WALTER V. BREM, M.D.
Physician at Ancon Hospital.
ANCON, CANAL ZONE.

(*Concluded from page 1904.*)

ANALYSIS AND DISCUSSION OF CASES.

ETIOLOGY.

Nationality.—Nine of the cases occurred in Americans, two in Spaniards, one in an Italian, one in a Greek, and one in a Spanish-American. Of the 1,107 malarial patients admitted during the period covered, the Teutonic race constituted 53.6 per cent.; Spaniards, 24.4 per cent.; Italians, 4.7 per cent.; Spanish-Americans, 5.6 per cent.; Greeks, .7 per cent.; seventeen other countries represented, 11 per cent. Hemoglobinuria developed, then, in about 1 out of every 66 Teutonic malarial patients; in 1 out of every 135 Spaniards; in 1

out of 52 Italians; in 1 out of 62 Spanish-Americans, and in 1 out of 5 Greeks. Among 122 representatives of seventeen other world-scattered countries no case occurred.

Age.—Seven cases occurred during the third decade, four during the fourth, three during the fifth. In the 1,107 malarial cases the incidence by decades was as follows: Third decade, 1 case out of every 77; fourth decade, 1 out of 77; fifth decade, 1 out of 45. Among 90 cases in the second decade, 30 cases in the sixth decade, 7 in the seventh and 1 in the eighth, no hemoglobinuria occurred.[3]

Sex.—All the cases of hemoglobinuria occurred in males. Of the total number of malarial cases, there were 30 females, 28 of whom were American and Canadian women.

Habitat.—One patient had lived on the Isthmus of Panama only 2 months and had come direct from the United States; four others had been on the Isthmus under one year, but three of these had lived in the tropics seven, five and two years; four had lived on the Isthmus under two years, and one of these had lived in tropical countries nearly six years; three had lived on the Isthmus between two and four years; one, twenty-two years; one, only two years, but was born in the tropics and had lived in tropical countries all his life except four years.

Previous Malaria.—One patient had had no malarial fever previously; two had had only one previous attack; four had had several attacks; six, many attacks.

Cachexia.—Five patients showed evidence of cachexia; six were large robust men; three were small men, well nourished, not particularly robust, but presented no evidence of cachexia.

Alcoholism.—Only one patient out of eight who were questioned gave an alcoholic history of any importance. One other gave a history of moderate use of alcohol.

Previous Hemoglobinuria.—None of the 8 patients questioned had had previous attacks of blackwater fever.

Quinin.—One patient received 30 grains of quinin daily for three days in the hospital before hemoglobinuria developed; another had taken 30 or 40 grains altogether during two days preceding admission, and he received 40 grains daily for two days in the hospital before the onset of hemoglobinuria; a third patient had taken some quinin before admission and received 45 grains in the hospital during the 30 hours preceding the onset of hemoglobinuria. A fourth patient gave a definite history of blackwater before admission and showed physical evidence of the correctness of the history; he had taken no quinin before the appearance of blackwater. Hemoglobinuria was present on admission in the ten cases remaining. Two of these patients were not questioned regarding previous quinin, but it is probable that both had received some. Of the other patients, one had taken 27 grains of quinin daily for six days before hemoglobinuria appeared; two had taken quinin, but no note was made regarding the quantity; one had taken small doses; one, 10 grains daily for two days; one, from 4 to 8 grains daily for four weeks (given prophylactically by canal authorities); one, 18 grains daily for two days; one, 30 grains during 24 hours preceding blackwater.

The largest quantities were 30 grains daily for three days, 40 grains daily for two days and 27 grains daily for six days; the smallest quantities were 10 grains daily for two days, from 4 to 8 grains daily for four weeks, and no quinin previous to blackwater according to the history of a patient who had no hemoglobinuria on admission, but who had three subsequent paroxysms while in the hospital and who showed evidence of having had hemoglobinuria before admission.

The 1,107 malarial cases treated in the wards during the period covered received as routine treatment from 20 to 40 grains of quinin daily. These are much larger quantities than are taken regularly by patients before coming into the hospital; yet among the 1,107 patients, in only three (excluding the last case mentioned above) did hemoglobinuria develop in the hospital.[4] Since those patients who are victims of the most severe infections are treated in the hospital, it would be anticipated that a greater number would develop hemoglobinuria from the large and regular dose of quinin if quinin were in any way an etiologic factor. It is probable that no one would contend that such small doses as 10 grains daily for two days or from 4 to 8 grains daily for four weeks would be factors in the onset of hemoglobinuria. Further, one patient who gave a credible history of blackwater previous to admission had taken no quinin before its appearance. While in the hospital he received quinin steadily, and, though he had three hemoglobinuric paroxysms occurring at intervals of two to four days, they were always associated with a recurrence of fever. Each time they subsided rapidly, although during two paroxysms the patient received 20 grains of quinin by intramuscular injection in addition to 20 grains by mouth on the day of one paroxysm and 30 grains by mouth on the day of the other (Case 13). Also, in Case 10 the recurrences of hemoglobinuria occurred synchronously with elevations of temperature, and did not appear to be related to the quinin received. That quinin could not have been an etiologic factor in these cases seems to be certain when are added to the above facts the results, discussed later, of the treatment of the condition by intramuscular injections of quinin.

Malarial Plasmodia.—Estivo-autumnal parasites were found in the peripheral blood of only one patient; in one other, tertian organisms were found, and the temperature curve for four days confirmed the diagnosis, but later the curve was of estivo-autumnal character, and it is more than probable that there was a mixed infection. In twelve cases the peripheral blood was negative, although one patient had taken no quinin before admission and the quantity taken by another patient (10 grains daily for two days) was so small that an absence of parasites would not have been anticipated. Five patients had taken a sufficient quantity to account for the absence of parasites in the peripheral blood, while the quantity taken by the five remaining patients is not

3. The ages of 1,100 of the 1,107 patients were obtained. The number of patients and the percentages per decade are as follows: First, 3 patients, .27+ per cent.; second, 90 patients, 8.2— per cent.; third, 531 patients, 48.3— per cent.; fourth, 303 patients, 27.5+ per cent.; fifth, 133 patients, 12.1— per cent.; sixth, 32 patients, 2.9+ per cent.; seventh, 7 patients, .6+ per cent.; eighth, 1 patient, .1— per cent.

4. The estivo-autumnal parasite was found in 473 of 1,107 blood examinations, a great majority of which were made by me. In 26 of these examinations it was in mixed infection with tertian parasites. Unmixed tertian infections occurred 232 times. The peripheral blood was negative for plasmodia 402 times. If the proportions hold good, 270 of the 402 negative cases were entirely or in part of estivo-autumnal origin, and there were then 743 estivo-autumnal infections, 67.12 per cent. Deducting the 11 cases in which hemoglobinuria occurred before admission, there remains 732 cases of estivo-autumnal infections, among which only three cases of hemoglobinuria developed while the patients were under treatment in the hospital.

known. Now, a great majority of patients admitted to the wards had taken a variable quantity of quinin before entering, yet in 1,107 cases plasmodia were found in the peripheral blood in 705 instances, 63.7 per cent.

In view of these figures, it is interesting to note again a phenomenon that has been pointed out often before, the frequent failure to demonstrate malarial organisms in the peripheral blood of hemoglobinuric patients. Organisms were found in only two of my fourteen cases, estivo-autumnal organisms in only one. In every case, however, except Cases 10 and 13, the temperature curve and course of illness indicated an infection with the estivo-autumnal parasite. In Case 10 the history and, more especially, the fifth, sixth and seventh days of fever indicate the presence of the estivo-autumnal parasite mixed with a double tertian infection.[5] In Case 13 the febrile paroxysms were too mild to show a definite character.

It is well known that the peripheral blood may give no indication of the "aggregate mortality going on among the corpuscles. . . . The principal part of the malarial drama is played out in the spleen, liver, bone marrow, brain, etc., and not in the general circulation. What is seen in finger blood is but an overflow, as it were, of the greater drama going forward in the viscera" (Manson). But why the malarial parasite disappears more frequently from the peripheral blood in hemoglobinuria has not been satisfactorily explained, and I have no data that would go to support any theory.

Is a Special Organism the Etiologic Agent?—There are several facts in favor of the theory that a special organism being the etiologic agent of hemoglobinuric fever: (1) The absence of pigment in the bone marrow of one and in the bone marrow and viscera of the other fatal case: the absence of parasites could be accounted for by the quantity of quinin received; (2) in many estivo-autumnal infections in which the peripheral blood shows an enormous number of parasites (I have seen five cases in which a thin blood smear showed an average of from 13 to 30 organisms to a field of the one-twelfth objective), there is no hemoglobinuria and but a small quantity of albumin in the urine; (3) when malarial plasmodia would certainly have been greatly decreased in number by quinin, the agent of hemoglobinuria is still able to produce in some way intense hemoglobinuria and albuminuria out of all proportion to other manifestations (Case 13).

On the other hand: (1) The disease is endemic in malarial regions, but never becomes epidemic, as would be anticipated, in a favorable environment if it were caused by a special parasite. The cases in the present series, for instance, are widely scattered both as to time and place. Case 10 came from Las Cascadas, from which place we had been receiving large numbers of patients with estivo-autumnal infections, yet this was the only one in whom hemoglobinuria occurred. In Case 11 the patient had lived in the house with eleven other men, seven of whom had had malarial fever, none blackwater. Cases 12 and 13 are other, but less striking, instances of the same kind. (2) The disease begins with manifestations resembling those of ordinary malarial fevers, and the course of illness, excepting hemoglobinuria and an occasional peculiar posthemoglobinuric fever, is not extraordinary. (3) Quinin appears to act as a specific remedy. (4) The estivo-autumnal parasite is associated with the condition much more frequently than is indicated by the present series. In a case of hemoglobinuria under my care while medical house officer in the Johns Hopkins Hospital, there was an enormous number of typical estivo-autumnal ring forms in the peripheral blood. Fully from one-half to two-thirds of the corpuscles were infected and many corpuscles contained from two to four parasites. One presegmenting form was seen. Malarial pigment was abundant.[7]

Summary.—The number of cases is too small to draw any conclusions regarding the etiologic significance of race, age and sex. Previous attacks of malarial fever seem to furnish a favorable, though not essential, ground for the production of hemoglobinuria. A cachetic condition does not appear to be important. Quinin as an etiologic factor may be reasonably excluded. The only factor of any great importance discoverable in this series is a febrile affection resembling the estivo-autumnal type of malarial fever. The burden of the evidence seems to be in favor of the view that the estivo-autumnal malarial plasmodium is capable, under certain unknown conditions, of causing sudden blood destruction sufficient to produce appreciable excretion of hemoglobin in the urine and intense albuminuria. What determines the onset of hemoglobinuria in one case out of every fifty-three[4] is not known, and at present one can only speculate on ideas of individual susceptibility or special characteristics of the infecting organism.

MORTALITY SCALE.

Among 1,302 total medical admissions during the period covered, there were 15 deaths, a mortality of 1.15+ per cent. The deaths from different diseases were as follows: Pernicious malaria (hemoglobinuric), 2 deaths; pernicious malaria (comatose), 2; pernicious malaria (atypical), 1; acute lobar pneumonia, 3; amebic dysentery, 3; chronic nephritis, 2; suppurative cholangitis, 1; undiagnosed, 1.

SYMPTOMS.

Onset.—There is nothing characteristic in the history of the onset in cases that develop hemoglobinuria to distinguish them from ordinary malarial fevers, except that a history of dark, black or bloody urine may be obtained very frequently. The symptoms vary as they may do in any estivo-autumnal infection. Fever was the only constant symptom; vomiting occurred in eleven cases; one chill occurred in four cases, two chills in three, three in one. Eight of the eleven patients who had hemoglobinuria before admission gave a history of having had dark, black or bloody urine; the other three patients were not questioned. Sweats, headache, backache, constipation and abdominal pain occurred variably.

Course of Illness.—The manifestations of the disease while the patients were under observation varied from those of the mildest infections to those of the severest grade. One patient had no symptoms whatever except slight fever, maximum 101, and retention of urine one day. He neither felt nor looked ill (Case 4). Vomiting occurred in eleven cases; five patients had one chill, one patient had two chills; two patients were irrational; two had involuntary passages of feces and one of urine; dyspnea occurred in both of the fatal cases.

5. In the discussion that followed the paper, nine cases were reported by Herrick; estivo-autumnal parasites were found in six, tertian in one. Curl reported sixteen cases that had occurred at Colon Hospital; estivo-autumnal parasites were found in ten, tertian in three. In the case above, it is true that hemoglobinuria occurred during the tertian-like paroxysms, and the case, together with those reported by Herrick and Curl should throw suspicion on the tertian parasite as a possible producer of hemoglobinuria.

7. The patient came direct from Louisiana.

Special Features.—Fever: Quotidian intermittent fever occurred in two cases; in one of these (Case 4) it was estivo-autumnal in character, the second paroxysm covering 20 hours; in the other the fever was double tertian in character for four days, estivo-autumnal afterward. In Case 2 one estivo-autumnal paroxysm about 40 hours long occurred—the rise and fall, each, occupied about 20 hours. In Cases 10 and 14 there were two estivo-autumnal paroxysms. Fever was estivo-autumnal, irregularly remittent and intermittent in two cases (Cases 3 and 5); in Case 5 there was a posthemoglobinuric fever of ten days' duration, which did not yield to quinin and was not malarial in character; in Case 3 the patient died during the posthemoglobinuric fever two days after the disappearance of blackwater. In Case 11 the fever was estivo-autumnal, irregularly remittent during hemoglobinuria. On the second day after the disappearance of hemoglobinuria, a quotidian remittent posthemoglobinuric fever began and continued obstinately for seventeen days; it was not influenced by quinin, and the Gruber-Widal test for typhoid was negative. In Case 13 there were three mild elevations of temperature; these occurred at irregular intervals, were of short duration and were not characteristic. In five cases (Cases 1, 6, 7, 8, 9) only morning and afternoon temperatures were observed, but the character of the fever was estivo-autumnal so far as can be judged. In Case 6 there was a mild posthemoglobinuric fever that persisted for ten days. In Case 7 the prolonged fever after the hemoglobinuric period, was not of the posthemoglobinuric character and could probably have been controlled by larger doses of quinin. In none of the other cases did the characteristic posthemoglobinuric fever occur.

To sum up, the character of the fever during hemoglobinuria was estivo-autumnal quotidian in one case; tertian quotidian in one case and later estivo-autumnal, irregularly remittent and intermittent; in two cases there were simple estivo-autumnal paroxysms; fever was estivo-autumnal, irregularly remittent and intermittent in two cases; estivo-autumnal, irregularly remittent in one; in one case the elevations of temperature were mild and not characteristic; in five cases the fever was of estivo-autumnal character so far as can be judged, but the curves have no definite character, as temperature records were made only twice daily. Posthemoglobinuric fever of special character occurred in four cases; the elevation of temperature in three cases was higher than during the hemoglobinuric fever. The low grade of fever in six cases was out of proportion to the severity of the illness. In no case did the fever afford information as to the gravity of the attack and the ultimate result.

Vomiting.—At some time during the attack vomiting was a distressing feature in all the cases except two (Cases 4 and 13). It was frequent and copious and seemed to be independent of the taking of food. It was most severe during the exacerbations of fever, and was probably central in origin. The vomitus was sero-mucoid and varied in color from light to very dark green, almost black.

Jaundice.—Jaundice was a constant feature. It varied from a slight discoloration of the scleræ to a rich yellow of scleræ and skin. Jaundice appeared with startling rapidity in Cases 3 and 14, in which hemoglobinuria developed while the patients were under observation. It cleared rapidly after the disappearance of hemoglobinuria in eleven cases, and in a twelfth it had almost disappeared before the patient's death. In two cases no note was made.

Spleen.—The spleen was not palpable in one case; in five it could be felt at or just below the costal margin; in five it reached 3, 5, 5, 8 and 10 cm., respectively, below the costal margin in the mammillary line; in two it reached to the umbilicus and crest of the ilium; in one it was "very large."

Blood.—It has been said that malarial plasmodia were found in only two cases. No other parasite-like bodies were seen. Though actual counts of the leucocytes were not made, there was no appearance in the blood smears of an increase in the number. Anemia was exceedingly rapid in progress in all the cases in which the hemoglobin was examined. The lowest posthemoglobinuric estimation was 17 per cent. in Case 11; the highest, 65 per cent., in Case 14. In the latter case there was practically only one hemoglobinuric paroxysm, yet there was a fall in hemoglobin from 95 to 65 per cent., nearly one-third. In Case 11 the hemoglobin fell from 42 to 28 per cent. in 24 hours, a loss of 18 per cent., or exactly one-third of the quantity first determined; the hemoglobin continued to fall to 17 per cent. In the last five cases, in which the hemoglobin was followed closely, the smallest quantities lost after the second morning in the hospital were 20 per cent. in Case 10 and 21 per cent. in Case 13. Still more remarkable is the rapidity with which hemoglobin is regained; in Case 11 it rose from 17 to 60 per cent. in 17 days; in Case 10, from 31 to 48 per cent. in 18 days; in Case 5, from 24 to 55 per cent. in 11 days. It is interesting to note that the fall of hemoglobin does not cease with the disappearance of hemoglobin from the urine. In Case 11 hemoglobinuria ceased at 10 p. m. April 20; on the morning of April 21 the hemoglobin estimation was 28 per cent.; during the next 24 hours there was a decrease of 6 per cent. In Case 12 there was a decrease of 5 per cent. during two days following the cessation of hemoglobinuria. In Case 14 hemoglobinuria had almost ceased on the morning of June 5, when the hemoglobin estimation was 86 per cent., but on June 9 there was shown a further decrease to 65 per cent., the quantity lost being far too great to be accounted for by the very mild hemoglobinuria on June 5 and 6.

By reference to the counts of the red blood corpuscles in Cases 13 and 14 it may be seen that at first the number of corpuscles decreases more rapidly than the loss of hemoglobin progresses, giving a color index above normal, 1.13 in Case 14. The color index then falls gradually until somewhat below normal eventually, .915 in Case 14, .93 in Case 13, .94 in Case 11. It appears, then, that there is at first a sudden destruction of a large number of red blood corpuscles, that the liberated hemoglobin produces a marked hemoglobinemia, and that the excretion of the hemoglobin produces hemoglobinuria. After hemoglobinuria ceases the hemoglobin percentage continues to decrease (with great rapidity in Case 14). A considerable quantity of this additional loss is probably taken care of by the liver and converted into bile pigments. Indeed, there is evidence of increased liver activity in the constant jaundice and the occasional positive reaction of urine to the test for bile. But it seems possible, also, that a portion is deposited in the body tissues, perhaps in the form of decomposition products, one of which, hemosiderin, is easily demonstrated in the viscera. This may help to explain the almost unparalleled rapidity with which the hemoglobin percentage in the blood increases after convalescence is

established. It seems that there must be present in the tissues of the body a large quantity of iron in a form readily available for use. In Case 11 the increase of hemoglobin was even more rapid than that of red blood corpuscles, the color index rising from .94 on May 5 to 1 on May 22.[8]

The fact that there is a more sudden decrease in red blood corpuscles than in hemoglobin indicates that the primary event is an actual destruction of red blood corpuscles. The corpuscles that remain retain a good color and do not appear to be greatly affected even when anemia is extreme, as in Case 11. In this case, with hemoglobin 17 per cent., there was but slight poikilocytosis, irregularities being chiefly in the size of the corpuscles. Smears stained with Hasting's stain showed comparatively little degeneration and no nucleated red corpuscles were found. In Cases 13 and 14 no poikilocytosis or degenerations were noted.

Urine.—Quantity: The data regarding the quantity of urine voided per 24 hours is meager and unreliable, except in Cases 8, 10, 11, 12 and 14. During most intense hemoglobinuria the output is usually decreased. In Case 8 there was almost total suppression, but in Case 11 the output was 2,100 c.c., 2,400 c.c. and 2,310 c.c. for the first three days; in Case 12 it was 2,160 c.c. for the first 18 hours; in Case 14 it was scanty, the maximum being 1,080 c.c. As improvement begins there is generally a decided increase, often in excess of normal. Retention occurred in three cases.

Color: During intense hemoglobinuria the urine in bulk by reflected light appears to be actually black. However, when viewed in a conical glass by reflected light it is of a Burgundy red or port color. Varying with the intensity of hemoglobinuria, the color ranges between a pale red and deep port. As hemoglobinuria decreases the supernatant urine may become perfectly normal in appearance, while the sediment yields the test for hemoglobin (Case 10). In two cases the urine had a greenish tinge with yellow foam; the reaction for bile was positive.

Sediment: The sediment at first is usually very heavy, and in color it is grayish brown, brown or brownish red. Macroscopically, it has a granular appearance and occasionally it is mixed with a mucoid material. Microscopically, it consists of an amorphous brown granular detritus, hyaline and granular casts and casts covered with the brown granular substance, a few leucocytes and epithelial cells. In the nine cases examined (repeated examinations were made in the last five cases) no red blood corpuscles were found.

Hemin Crystals: These were obtained by the sodium chlorid and glacial acetic acid method in all ten cases in which the test was made. During intense hemoglobinuria the crystals can be derived easily from the supernatant urine, but the supernatant urine usually fails to give a positive test before hemoglobin has disappeared from the sediment (Cases 10, 11, 14). In two other cases (Cases 12 and 13) the reaction was obtained from the urine when no sediment was present after standing. The test for hemoglobin can be obtained readily from the albumin coagulated by heat. The hemoglobin in solution is precipitated with other albumin, giving a brown color to the coagulum. The supernatant urine is left clear.

Albuminuria: In every case albuminuria was an important feature. The lowest maximum albumin was 15 per cent. (Case 7); the highest, 95 per cent. (Case 5). In the latter case the urine when boiled became almost solid. Albuminuria was greatest when hemoglobinuria appeared to be most intense, and it ran a course almost parallel with hemoglobinuria, but always persisted for a variable time after the disappearance of the latter. I have obtained a positive test for hemoglobin in only one case (Case 10) when the albumin was under 11 per cent. (Case 13). In Case 10 the sediment yielded the reaction when albumin was 6 per cent. Albuminuria does not appear to give warning of the onset of hemoglobinuria. In the cases of hemoglobinuria that developed in the hospital, no albumin was present in the urine on previous examinations. Further, there have been five white patients, with uncomplicated malarial fevers, whose urine showed albumin between 10 and 25 per cent., gave no evidence of hemoglobinuria macroscopically, and yielded no hemin crystals. Numerous similar instances have occurred among the negro patients. In only one instance (Case 13) was I able to obtain a very early specimen in a hemoglobinuric paroxysm. This urine was of a curious pale red color, clear, no sediment, albumin 11 per cent., test for hemoglobin positive. Three hours later the color was dark port, heavy sediment, albumin 46 per cent. The two conditions occur synchronously and suddenly and appear to be of common origin.

DIAGNOSIS.

In the more pronounced cases, practically an absolute diagnosis can be made from a macroscopic examination of the urine combined with the test for albumin. A characteristic picture is given by the black appearance of the urine in bulk by reflected light, its deep red color by transmitted light, the heavy brownish sediment, and a high percentage of albumin. In the less definite cases (Case 7) a positive diagnosis can be made only by a test for hemoglobin; for in ordinary malarial fevers the urine is frequently colored so deeply that the presence or absence of hemoglobin can not be determined otherwise. Albuminuria is a valuable aid, though it is not a certain one. As stated above, from 10 to 25 per cent. of albumin occurred in five white patients whose urine gave a negative reaction for hemoglobin. In all of these, albuminuria cleared entirely with the disappearance of fever. The sediment, also, is an inconstant feature. It has been said that a positive reaction for hemoglobin was twice obtained from urine when no sediment was present. As a rule, however, when a test for hemoglobin is not feasible, I believe that a fairly safe diagnosis can be made from a highly colored urine with a brownish sediment and albumin 20 per cent. or more.

PROGNOSIS.

A correct prognosis in individual cases is very difficult. Neither the blood nor urine examinations were of aid in forecasting the result. The patient who seemed most ill, whose urine showed the most intense hemoglobinuria, apparently, and the highest percentage of albumin, 95 per cent., and whose life was despaired of during three days, made a good recovery (Case 5). Likewise, the pa-

8. The hemoglobin estimations, except the one made with Dare's hemoglobinometer and the first one in Case 5 were all made by me with the same instrument; likewise the red blood counts. I have been unable to standardize my Sahli's hemometer, but in a number of ordinary malarial cases, in several cases of anemia from uncinariasis and in one healthy person I have tested the color index. This was low in the anemia of uncinariasis. In 3 malarial convalescents it ran as follows: (1) hemoglobin 100, color index .975; (2) hemoglobin 90, color index .868; (3) hemoglobin 84, color index .974. In a healthy person the results were: Hemoglobin 98, color index 1.007. In a large number of simple hemoglobin estimations, the instrument has given, apparently, very accurate results.

tient recovered whose hemoglobin reached the lowest mark, 17 per cent. (Case 11). It has been shown above that the character of the fever bears no relation to the gravity of the illness.

Mortality.—The mortality in the series was 14.3 per cent.[9]

TREATMENT.

Quinin.—The treatment that was pursued can be summed up practically in one word—quinin. In every case the drug was administered by intramuscular injections, and in every case, including the fatal ones, hemoglobinuria or blackwater disappeared with greater or less rapidity, and recurred only in the cases that received the smaller quantities. Albuminuria, also, rapidly decreased. Morphin was used freely with quinin to allay restlessness and vomiting and to lessen cinchonization.

Dose and Administration: Two methods of treatment were used. The first five patients were given 10 or 15 grains of quinin intramuscularly every four or six hours for varying lengths of time, usually covering 48 hours, and then 5 grains by mouth every four hours, except in Case 5. The next eight patients received 10 grains intramuscularly at 8 and 10 a. m. daily as long as indicated by vomiting or by the general condition of the patient, and then 30 grains by mouth given in broken doses before 12, noon, daily. The last patient (Case 14) received 20 grains intramuscularly on the evening hemoglobinuria developed, 20 grains intramuscularly the following morning and again in the afternoon, and 30 grains intramuscularly the third morning. The number of cases is too small to allow conclusions to be drawn from the mortality. There was one death in each group of cases. Theoretically, if quinin as an etiologic factor has been excluded, the first method should be of greater value. The cases in which recovery took place under it (except Case 5) ran a milder course and appeared to lose less hemoglobin than those treated by the second method. In none of this group did hemoglobinuria or blackwater recur after its first disappearance. In the second group hemoglobinuria recurred in four cases (Cases 10, 12, 13, 14). In Cases 10 and 13 there were three recurrences. Further, a case of algid pernicious malaria was admitted to the ward at 9 a. m. A moderate number of estivo-autumnal parasites were present in the peripheral blood. He received 10 grains of quinin intramuscularly at 10 a. m. and 12, noon, and the same dose at 8 and 10 a. m. on the following day. On the morning of the third day I was able still to find parasites in the peripheral blood. If hemoglobinuria is caused by the estivo-autumnal parasite, it seems certain that the small doses are not sufficient to destroy the organisms in a minimum length of time, every hour of which may count in the saving of so much blood for the patient.

I think that the best results will be obtained by administering 10 grains of quinin intramuscularly every four hours during the first 48 hours, or 15 grains may be well substituted for the first three or four injections. By this means a strong solution of quinin in the blood can be maintained during the cycle of development of the estivo-autumnal parasite, and all parasites will be subjected to its influence at some time during the cycle when they are most susceptible to the action of quinin. After 48 hours the dose may be reduced and given by mouth if vomiting does not forbid.

Preparations Used.—Two different preparations of quinin were used for intramuscular injections, the bihydrochlorid and the bimuriate with urea. Extensive necrosis and suppuration in two cases followed the use of the former preparation, while only a few superficial necroses occurred after the latter. In Case 7 and in the last five cases the two preparations were alternated, and with one exception (Case 12) the bihydrochlorid proved less irritating. The solution of bihydrochlorid used in the two cases of extensive necrosis (Cases 4 and 5) did not contain an excess of hydrochloric acid[10] and there was a precipitate in the bottle. The addition of a small amount of sodium bicarbonate to a portion of the solution caused a heavy precipitation. It is probable, then, that the alkalinity of the tissues caused a partial precipitation of quinin at the sites of the injections and that necrosis of the tissues and infection followed. Later solutions contained an excess of acid, and the results from these solutions have been definitely superior to the results from solutions of the bimuriate and urea. The strength of the latter solutions was 1 to 12; the strength of the solutions of bihydrochlorid from which the best results were obtained was 1 to 3. The bihydrochlorid, then, has the additional advantage of being much more easily administered.

GENERAL SUMMARY.

1. A febrile affection resembling the estivo-autumnal type of malarial fever was the only etiologic factor discoverable. Previous attacks of malarial fever appeared to furnish a favorable ground. Quinin was not an etiologic factor, either predisposing or exciting. Evidence appears to favor the view that the estivo-autumnal parasite, and not a special organism, is the exciting cause.

2. The symptoms and signs of the disease may be very mild and the gravity of the illness indicated only by the urine examination. A history of dark, black or bloody urine can be obtained almost invariably.

3. The degree of fever bears no relation to the intensity of hemoglobinuria and albuminuria. A post-hemoglobinuric fever of peculiar character occurred in four cases; it does not yield to quinin.

4. Blood examinations show that the primary event is destruction of the red blood corpuscles, with hemoglobinemia and subsequent hemoglobinuria. Anemia is very rapid, and the rapidity of recovery is phenomenal.

5. In well-defined cases practically an absolute diagnosis can be made from a macroscopic examination of the urine combined with the test for albumin. In borderline cases a test for hemoglobin is necessary for absolute diagnosis, but a probable diagnosis can be made from a deeply colored urine with a brownish sediment and albumin 20 per cent. or more.

6. The mortality was 14.3 per cent. in the series.

7. A correct prognosis in individual cases is difficult.

8. Intramuscular injections of quinin appear to act specifically. The best method is thought to be the injection of 10 grains every four hours during the first 48 hours (15 grains may be substituted for the first three or four doses) and then smaller doses by mouth may be given if vomiting does not forbid. Quinin bihydrochlorid in an excess of acid is more suitable than quinin bimuriate with urea for intramuscular injection.

9. In Herrick's nine cases there was one death. Eight of these were treated with quinin, and all recovered; one was treated without quinin and terminated fatally. These cases occurred at Ancon Hospitals. Adding the eight cases treated with quinin to my fourteen cases, the mortality was only 9.1— per cent.

10. The solutions of the bihydrochlorid were prepared from the hydrochlorid by the addition of pure hydrochloric acid to slight excess of solution. The very soluble acid hydrochlorid or bihydrochlorid was thus formed. Sodium chlorid was added to make a normal salt solution. Very slight and often no irritation followed the intramascular injections.

FIBROID TUMORS OF THE UTERUS.

A STUDY OF THE DEGENERATIONS AND COMPLICATIONS IN TWENTY-TWO HUNDRED AND SEVENTY-FOUR CASES.

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(*Continued from page 1886.*)

SARCOMA AS A COMPLICATION OF FIBROMYOMATA UTERI.

Sarcoma of the uterus was present in 34 of the 2,274 women, or 1.4 per cent. In the 337 cases operated on by me, there were 2 cases of sarcoma, and in the last 100 operations there was no case of sarcoma.

It is known by pathologists that a fibroid tumor may undergo a sarcomatous degeneration, that is, that the fibroid tumor itself may be converted into a sarcoma. On the other hand, certain clinicians believe that many cases in which this degeneration is supposed to have occurred were really sarcomata from the beginning.

Winter[7] reports two series of cases with reference to the relation of fibroid tumors to sarcoma. The first consists of 500 cases in which only the suspicious points were examined microscopically. In this series sarcoma was found in 3.2 per cent.; in the second series, consisting of 253 cases, where sections were taken systematically from different areas, sarcoma was found in 4.3 per cent. The average for the entire series is 3.6 per cent. His own cases added to those of Fehling and Hofmeier make 1,743 cases in which sarcoma was found 46 times, or 2.7 per cent. Winter believes that if myomata were examined systematically, sarcoma would be found in about 4 per cent. of all cases.

Cullen[18] insists on the necessity for an immediate examination of the uterine mucosa of all myomatous nodules after hysteromyomectomy in order to exclude the presence of sarcoma as well as of carcinoma. In my own series of 337 cases, there were only 2 cases of sarcoma. Combining the 2,274 consecutive cases with 1,743 from Winter's paper furnishes a total of 4,017 cases in which sarcoma was present 81 times, or 2 per cent. This experience should be taken in connection with the experience of Winter, who shows that when sarcoma was diligently searched for by examining all tumors contained in a uterus, it was found in 4.3 per cent., whereas, when looked for in the customary way by examining only one tumor and that the one which was under suspicion, it was found in 3.2 per cent.

THROMBOSIS, EMBOLISM AND PHLEBITIS, AS COMPLICATIONS OF FIBROMYOMATA UTERI.

Thrombosis, embolism and phlebitis are three complications which are encountered more frequently in connection with fibroid tumors than with any other known condition. All three are much more common after operation for fibroid tumors than in the natural history of the disease.

I observed a striking case of phlebitis occurring with a fibroid tumor before operation in the practice of Dr. Isaac Leopold. The patient was suddenly seized with a severe peritonitis. After the subsidence of the peritonitis, a phlebitis of the veins in the left side of the neck extending below the clavicle and into the axilla appeared. Operation was postponed until the evidence of phlebitis had disappeared. At the operation the cause of the peritonitis was found to be a pedunculated fibroid tumor which had undergone torsion of its pedicle. The patient progressed well after the operation until the third week, when she developed symptoms of embolism in the floor of the fourth ventricle and died two days later, the muscles of deglutition being paralyzed. I have seen at least one other case of phlebitis secondary to inflammatory changes in a fibroid tumor without operation.

Baldy[16] states that of 19 patients who died suddenly after operations in his hands, 13 were in cases of fibroid tumor, whereas the cases of fibroid tumor numbered but 366 out of a total of 3,413 patients. The sudden deaths were tabulated as cardiac 13, pulmonary 4, cerebral apoplexy 2. He holds that fibromyoma of the uterus is not a local disease, but that the process is practically a general one, in that it involves other organs, how many and to what extent and how early is unknown. He believes in the prompt removal of fibroids to avoid these general complications.

Schenck[17] states that postoperative thrombosis of the veins on the lower extremities occurred 48 times in a series of 7,130 women operated on in the gynecologic department of the Johns Hopkins Hospital. The operations in the affected cases were as follows:

Perineorrhaphy	4
Hysteromyomectomy and myomectomy	19
(Of the 7,130 women, 727 had fibroid tumors.)	
Ovariotomy	9
Hysterectomy for carcinoma	5
Suspensio uteri	3
Suspensio uteri and perineorrhaphy	4
Hysterectomy for pelvic inflammatory disease	1
Miscellaneous	3

This report of Schenck's is quite in accord with that of Baldy and with my own experience. The causes of thrombosis, embolism and phlebitis are by no means definitely known. There is no doubt that infection is the cause of thrombophlebitis in a definite proportion of cases, but the fact that thrombosis and phlebitis occurred 19 times in fibroid tumors and only once in pelvic inflammatory diseases is sufficient evidence that there are other factors than infection in the production of these allied conditions. Anemia, increase in the number of white blood cells and blood plaques and changes in the relation of the chemical constituents of the blood, slowing of the blood stream, abnormalities in the walls of the veins and traumatism, are all factors. The ultimate solution of this problem must be worked out on the lines of general pathology rather than by looking for a local cause. It is evident, however, that fibroid tumors in their development bring about such changes in the blood and circulation as to favor the development of thrombosis, embolism and phlebitis, and this fact constitutes one of the indications for the early removal of fibroid tumors.

FIBRO-CYSTS OF THE UTERUS AS A COMPLICATION OF FIBROMYOMATA UTERI.

In the total series of cases there were 58 fibro-cysts of the uterus, or 2.5 per cent. It is well recognized that the larger fibro-cysts rapidly increase in size and fluid contents, and cause a fatal termination in a manner similar to that caused by ovarian cysts. The natural history of the smaller cysts is not so definitely known, but there is every reason to believe that when cystic degeneration once occurs the fluid content increases and the small fibro-cyst becomes a large one. There is no

16. Baldy: "The Mortality in Operations on Fibroid Tumors of the Uterus," Amer. Jour. Obstet., 1905, vol. lii, No. 3, p. 370.
17. Schenck: "A Résumé of Forty-eight Cases of Post-operative Thrombosis," N. Y. Med. Jour., Sept. 6, 1902, p. 401.

doubt also that in a definite percentage of cases myxomatous degeneration ends in cystic degeneration. In another group of cases the termination is in necrosis, which is also true of edema of fibroids.

Bland-Sutton[18] holds that myxomatous degeneration of a fibroid tumor, so described, is not so in fact, but that it is a primary condition which seems to bridge the interval between true fibromyomata and sarcoma of the uterus. He appears to be alone in ascribing so serious a nature to myxomatous degeneration.

Winter[7] reports that Hofmeier in 255 fibroid tumors removed by operation found 8 fibro-cysts, or 3.2 per cent. Cullingworth found 5 fibro-cysts in 100 operations, or 5 per cent. If myxomatous degeneration, edema and hyaline degeneration were classed with the cystic degeneration, in which these morbid conditions frequently result, the percentage would naturally be far greater.

ANEMIA AS A COMPLICATION OF FIBROMYOMATA UTERI.

Having considered the more important degenerations and complications arising in the uterus and tumor itself in which it is feasible to draw fairly definite deductions as to the mortality which would ensue without operation, we will now consider a number of the associated conditions the result of fibroid tumors which cause invalidism, as a rule, and death in a variable percentage of cases.

Hemorrhage resulting in anemia is one of the most common results of fibroid tumors. According to Winter,[19] it occurs in about two-thirds of the cases of myoma, most frequently in cases of submucous fibroids. My own experience would not indicate so large a percentage, but in cases of submucous fibroids it is always present and is often very profuse, leading to profound anemia. I have reported two cases of this type. In one the hemoglobin was reduced to 10 per cent., the erythrocytes to 2,325,000. This patient was curetted to control the bleeding, and later had a hysterectomy and made a good recovery. In the other, the hemoglobin was reduced to 15 per cent. and the erythrocytes were reduced to 1,016,000. In this case also the patient made a good recovery.

Grave anemia is a serious condition which produces profound invalidism while it lasts, and sometimes it is fatal or impossible to cure. A fatal result due to hemorrhage is rare. Pellanda,[20] in a study of 171 cases of death from fibromyomata without operation, states that 6.4 per cent. of fatal cases are due to hemorrhage. The more usual result of grave anemia is that finally the patients are operated on and their unfavorable condition tends to swell the mortality of operation.

The relation of anemia due to hemorrhage from fibroid tumors to degeneration of the heart and secondarily to degeneration of the kidneys is well recognized. These secondary results of fibroid tumors lead to a fatal termination in a definite percentage of cases without operation, and the same conditions with the changes in the circulation due to pressure of the tumor constitute the chief underlying causes of thrombosis and embolism following operation, which would be avoided by the early removal of the tumors.

18. Bland-Sutton: "Essays on Hysterectomy," London, 1904, p. 7.
19. Winter: "Die Wissenschaftliche Begründung der Indikationen zur Myomoperation," Ztschr. f. Geburts. u. Gynäk., 1905, vol. lv, p. 59.
20. Pellanda: "La Mort par Fibromyomes utérins," Paris, 1905.

INJURIOUS PRESSURE BY FIBROID TUMORS ON THE URINARY ORGANS.

Symptoms referable to the bladder are very common in the life history of fibroid tumors. In a considerable number of women on whom I have operated for fibroid tumor, the cause of their seeking advice was that they were unable to void urine. In some of them this was the only symptom complained of. In other cases, through disturbances of the circulation and through infection, very marked bladder symptoms may be present, and cystitis may occur. In my experience this has been especially true of fibroids which had undergone calcification. In some cases the pressure has been on the ureter rather than on the bladder. As is well known, irritation in the lower end of the ureter causes an intense desire to urinate. In one case coming under my observation an old lady of 67 years, after a life of invalidism extending over 32 years, was driven to operation because of the torments she suffered from inability to hold urine more than a few minutes. A calcareous fibroid had made such pressure on the right ureter as to cause destruction of the right kidney; and thus the fibroid caused her death at 67, after enduring her invalidism from the age of 35, in the vain hope of a cure through atrophy following the menopause.

Knox[21] reports 25 cases of ureteral obstruction by means of fibroid tumors of the uterus. Ten of these occurred in Kelly's clinic at the Johns Hopkins Hospital and 15 were collected from other sources. He concludes that some compression of the ureters is produced by a large proportion of all large fibroid tumors. This is a question which has received relatively little study, because, as a rule, none of the cases except those found at autopsy has been diagnosticated. There is no doubt, however, that degenerative changes in the kidneys are caused by pressure on the ureters as well as by cardiovascular degeneration.

RENAL COMPLICATIONS OF FIBROMYOMATA.

Renal complications in the form of dilatation of the ureters from pressure and nephritis are more common than is usually believed. In 30 per cent. of Webster's* cases there was noted one or more of the following indications of renal involvement: Deficient amount of urine or urea, albumin, casts and edema of the feet. Webster believes that the factors concerned in the production of these renal disturbances are probably identical with those causing the cardiac changes in connection with myomata of the uterus.

Dilatation of the ureters and hydronephrosis was mentioned four times in the series of 2,274 cases. Any other cases occurring in this series were not observed at operation or at autopsy. The literature, however, contains numerous references to this condition found at autopsy.

Pellanda[20] states that in the natural history of the disease death from compression of the abdominal and pelvic viscera occurs in 25.8 per cent. of the fatal cases. Of 44 fatal cases from this cause, the intestine was involved in 20, the ureter in 13, and in 11 the uterus, vagina, bladder or abdominal wall was perforated.

21. Knox: "Compression of the Ureters by Myomata Uteri," Amer. Jour. Obstet., September and October, 1900, vol. xlii, pp. 364 and 496.

* Webster: "A Consideration of Fibroid Tumors of the Uterus, Based on a study of a Series of 210 Cases Treated Surgically," Amer. Medicine, 1905, March 11, p. 401.

CARDIOVASCULAR CHANGES DUE TO FIBROMYOMATA.

The relation of fibroid tumors to degenerative changes in the myocardium and in the blood vessels is a problem which as yet is not definitely settled. The occurrence of brown atrophy and of fatty degeneration of the heart, of fibroid changes in the arterioles, of secondary degenerations in the kidneys, and of changes in the circulation, blood vessels and blood, leading to thrombosis and embolism, have all been ascribed to the influence of fibroid tumors on the economy. The evidence is satisfactory that all of these secondary changes do occur, but the percentage and mode of their occurrence is not definitely known.

Hofmeier,[22] Fenwick,[23] Strassman and Lehmann,[24] all have discussed this question *in extenso*.

Boldt,[25] in a study of this subject, covering 79 cases of fibromyomata, states that in 37 patients, or nearly 47 per cent., some circulatory disturbance was noted. In many of the patients the symptoms might have been functional in their nature. One patient died of angina pectoris. Five of the patients died after operation. Death in three of the five patients was clearly due to cardiovascular degeneration.

Pellanda[20] states that death in the natural course of fibromyomata occurred from thrombosis of the pelvic venous sinuses and pulmonary embolism, cardiac lesions and sudden syncope, in 11.1 per cent. of the cases.

From my own experience I do not believe that cardiovascular degeneration plays a very important rôle in producing fatal results in fibromyomata of the uterus either in the natural history of the disease or after operation except in neglected and late cases. The changes are secondary, as a rule, to anemia from hemorrhage or to malnutrition superinduced either by hemorrhage or by disturbance of digestion from the pressure of the tumors.

Interference with the circulation by pressure of the tumors also plays its rôle in the production of thrombosis, phlebitis and embolism. If patients were operated on early, or if when referred for operation late they were well prepared before operation, the mortality from cardiovascular changes would be much diminished. There is no doubt that the occurrence of thrombosis, phlebitis and embolism is favored by the anemia and cardiovascular degenerations resulting from fibroid tumors, and thus add to the morbidity of operations for fibroid tumors.

Fortunately, only a small percentage of cases of thrombosis or of phlebitis end fatally either by embolism or by septicemia.

Winter[26] has studied a series of 266 cases of fibroid tumors from the standpoint of the relation of these growths to heart lesions. He did not trust to his own examination, but sent each of the patients to a skilled physician for examination. A summary of the results follows:

1. Heart entirely normal; clear tones, normal outline, 163 cases, 60 per cent.

2. Murmurs (78) and impure tones (3) were observed, 81 cases, 30 per cent.

The significance of the murmurs were ascribed to:

Anemia	52
Apparent anemia	16
Arteriosclerosis	6
Neurasthenia	2
Adipositas cordis	2

3. Dilatation and hypertrophy (cases due to valvular disease and myocardial alterations excluded), 16 cases, 6 per cent.

Fourteen cases of dilatation; majority due to anemia; some could be accounted for by nephritis, arteriosclerosis, emphysema.

4. Cardiac insufficiency, 3 cases, 1 per cent.

Mitral regurgitation	1
Mitral stenosis	2

5. Myocardial disease, 3 cases, 1 per cent.

This contribution of Winter is especially important as showing the percentage of cases having cardiac changes secondary to fibroids, presumably in the group of patients capable of walking to a physician's office.

THE INFLUENCE OF THE MENOPAUSE ON DANGERS ARISING FROM FIBROID TUMORS.

The classical position was that if a woman would but endure the sufferings entailed on her until the menopause the tumor would undergo atrophy and disappear, the woman thus making a spontaneous recovery. At this time it is scarcely necessary to say more than that this teaching had but a small basis in fact. It is true that some fibroid tumors undergo atrophy after the menopause and become smaller, but I am not personally familiar with a single authentic case in which a fibroid tumor has entirely disappeared after the menopause. Those mentioned in the literature which I have investigated have belonged to this category; that is, the statement is that they have become very much smaller or that the reporter has been told by somebody else that they have disappeared. On the contrary, it is very well known that the dangers arising from fibroid tumors are much greater at and after the period of the menopause than in women under 40. This fact has been especially emphasized, among others, by Bland-Sutton.[17] The point has not yet been worked out definitely and, therefore, should particularly engage the attention of gynecologists at this time, but from my own experience I am inclined to believe that cancer of the body of the uterus is as apt to occur in connection with the small, partly atrophied tumors found after the menopause as in tumors of large size. It is also well recognized that instead of undergoing atrophy at the time of the menopause a considerable proportion of fibroid tumors grow very much more rapidly after than before that period. Necrosis, cancer, sarcoma and cystic degenerations are all more common after 40 than before it. The tumors which become calcareous later in life produce injurious pressure symptoms upon the urinary organs and bowels. Calcareous tumors are especially liable to undergo necrosis from defective blood supply. The cardiovascular degenerations arising from fibroid tumors are also much more common after 40 than before it.

In 187 women whom I have operated on for fibroid tumors,[3] the following were the ages classified in decennial periods:

Under 20	1
Between 20 and 30	6
Between 30 and 40	77
Between 40 and 50	76
Between 50 and 60	20
Between 60 and 70	7

In the last 100 women operated on for fibroid tumors by abdominal hysterectomy, the ages were as follows:

20 to 30	2
30 to 40	36
40 to 50	45
50 to 60	14
60 to 70	7

22. Hofmeier: "Zur Lehre vom Shock (Ueber Erkrankungen der Circulations-Organe bei Unterleibsgeschwülsten)," Ztschr. f. Geburt., u. Gynäk., 1885, vol. xi, p. 366.

23. Fenwick: "Cardiac Degeneration from the Pressure of Abdominal Tumors," The Lancet, May 26, 1888, p. 1015.

24. Strassman and Lehmann: "Zur Pathologie der Myomerkrankung," Archiv. f. Gynäk., 1898, vol. lvi, No. 5, p. 503.

25. Boldt: "Uterine Fibromyomata and Visceral Disease," N. Y. Med. Jour., Oct. 28, 1905, p. 887.

26. Winter: "Die Wissenschaftliche Begründung der Indikationen zur Myomoperation," Ztschr. f. Geburts. u Gynäk., 1905, vol. lv, p. 109.

Thus, in 287 women who were driven to operation because of fibroid tumors, 44, or 15 per cent., were upward of 50 years of age. When it is considered that most fibroid tumors are removed before women reach the age of 45, it is striking evidence of the fact that they are prone to produce grave disorders in women who have passed the menopause.

As illustrative cases I might refer to the one already reported, in which a woman of 67 was driven to operation from intolerable bladder symptoms after enduring invalidism and semi-invalidism from the age of 35.

I have also reported the case of a physician's wife who had suffered from the age of 35 to 53 from uterine hemorrhages before the menopause was established. Subsequently her health improved, but she was never a vigorous woman. When about 75 years of age, after a rough drive on a country road, the tumor became necrotic, an abscess developed which ruptured into the bowel, a drainage operation was performed, but the patient died of sepsis.

A striking case was that of Miss M., aged 63, referred to me by the late Dr. Pugh. Her family and personal history presented nothing of a special nature. She passed the menopause at the age of 45 without incident. She had been relatively well until nine months before consulting me, when she had difficulty with the bladder and sometimes incontinence. Subsequently she was troubled with leucorrhea in increasing quantities and with some odor. For some weeks before she came to me the leucorrheal discharge was stained with blood. On examination a virginal and senile vagina was found,[27] the cervix was small and normal, and the uterine body was much enlarged and irregular in shape, suggesting fibroid tumor. A clinical diagnosis of degenerating tumor or a fibroid tumor complicated by an adenocarcinoma of the body was made. A hysterectomy was advised; curettage was performed as a preliminary for diagnostic purposes, and no evidence of cancer was found; hence a diagnosis of degeneration of a fibroid was made. Supravaginal hysterectomy was performed, and the uterus was cut open by an assistant, when the endometrium was found smooth and apparently uninvaded by any growth. Later the pathologist reported a squamous epithelioma of the fibroid, and after further study made the diagnosis indicated by the title of the paper in which the case was first reported. In other words, a fibroid tumor quiescent in the uterus for years was the final cause of the development of cancer at the age of 63. The operation was performed Feb. 18, 1903, and, although the cervix was left in, there has been no recurrence.

Another instructive case is that of Mrs. H., aged 49, who consulted me in 1891, complaining of neuralgic pains and the nervous symptoms of the menopause, which had existed for six months. Her menstruation was not excessive, although it came every three weeks. She was very pale and in poor health. On examination a large nodular fibroid tumor was found filling the pelvis and extending half way to the umbilicus. At that time I advised expectant treatment and put her on tonics, and gradually her nutrition improved. In 1902 she consulted me to thank me for the advice I had given her in 1891 and to say that the statement I had made at that time, that the tumor would become smaller, was true, because from her standpoint it had disappeared. She refused examination. She consulted me again May 23, 1904, and on examination I found a tumor pretty well filling the pelvis. She had lost thirty-seven pounds in the preceding seven months, was suffering from nausea, vomiting and partial obstruction of the bowels. There was every reason to believe that she had a cancer of the uterus, with secondary involvement of the intestines. She died later in the summer.

27. Noble: "Report of a Case of the Invasion of a Fibromyoma of the Uterus by an Adenocarcinoma, which by Metaplasia Had Assumed the Appearance of a Squamous Cell Carcinoma," Amer. Jour. Obstet., 1904, vol. xlix, No. 3, p. 306.

SPONTANEOUS DISAPPEARANCE OF FIBROID TUMORS AFTER PREGNANCY.

There is much more evidence of the spontaneous disappearance of fibroid tumors in a small percentage of cases after pregnancy than is true of their disappearance after the menopause. Thus, Doran[28] reports 13 cases of the spontaneous disappearance of fibroid tumors associated with pregnancy. In 11 it is stated that the fibroids entirely disappeared, and that in 2 they partly disappeared. Doran says that, although many of the cases reported may have been based on an error in diagnosis, nevertheless so many cases have been recorded by experienced authorities that there can be no doubt that fibroid tumors of the uterus of considerable size sometimes disappear spontaneously before the menopause. In a study of the subject in 1904, Doran[29] expresses himself even more skeptically concerning the spontaneous disappearance of fibroids. He refers repeatedly to errors of diagnosis and to the possibility of mistaking inflammatory masses for fibroids. He admits the possibility of the disappearance of fibroids, but says "evidence as to their total or almost complete disappearance before the menopause is very scanty and unsatisfactory."

Olshausen[30] states that myomata, as a rule, undergo considerable diminution in size after the puerperium. In most of the cases they do not become any smaller than they were before pregnancy; in others, the shrinkage goes further. The entire disappearance of fibroids during the puerperium has been reported by so many trustworthy authorities that it can no longer be doubted.

I have never observed the entire disappearance of a fibroid tumor, either after pregnancy or the menopause, nor has any case been reported to me as having been observed by any of my acquaintances. Therefore, while it is probable that fibroid tumors have disappeared spontaneously both after pregnancy and after the menopause, such a termination is one of the rare exceptions in the history of these growths and is never to be anticipated in any particular case.

RECENT LITERATURE OF FIBROID TUMORS OF THE UTERUS.

For the purpose of this paper, based, as it is, on the exact study of a consecutive series of cases, much of the recent literature, in itself valuable, could not be employed; hence, in this connection, I shall refer to a few of the papers which have especially impressed me among the many consulted in the hope of finding consecutive series of cases to add to the present table of 2,274 cases.

Gordon,[31] of Maine, in 1893, was one of the first to advocate the early removal of fibroids in cases which produced symptoms, and to make the claim that a very large percentage of fibroids do produce symptoms. In

28. Doran: "The Absorption of Fibroid Tumors of the Uterus," Trans. Obstet. Soc. of London, 1893, vol. xxxv, p. 250.

29. Doran: "The Disappearance or Absorption of Fibroids Before the Menopause," Jour. Obstet. and Gyn. British Empire, Aug., 1904, vol. vi, p. 141.

30. Olshausen: "Myom und Schwangerschaft," Veit's Handbuch der Gynäkologie, 1897, vol. ii, p. 767.

31. Gordon: "Dangers and Complications of Uterine Fibroids," Trans. Amer. Gyn. Soc., 1893, p. 91.

1895 he[32] again emphasized this belief, and in various discussions which have taken place since that date he has always maintained the correctness of the teaching that almost all fibroid tumors should be removed, certainly all fibroids which were causing symptoms when the patient consulted the physician, and has repeatedly pointed out that women do not consult a physician unless fibroid tumors are producing symptoms. In his first paper, he calls especial attention to the degenerations and complications which are present in a large percentage of fibroid tumors.

Richardson,[33] of Boston, in a suggestive paper, states that whenever we postpone operation on uterine fibroids, no matter how benign these tumors may seem, we are running a risk beside which the dangers of an operation are but trivial. Richardson believes that the risks of operation in skilful hands is less than the risk of overlooking carcinoma and sarcoma under the mistaken diagnosis of an uncomplicated fibroid.

Lewis[34] says that there is an etiologic relation between adenocarcinoma of the corpus uteri and fibroma seems probable, although the exact relationship can not be stated. "I would like to make it a working rule that every fibroid of the uterus should be operated on as soon as the diagnosis is made, except small ones whose only symptoms are slight discomfort due to their mechanical presence in the pelvis. These should be excepted only when the patient can be under proper surveillance and is willing to undergo examination at intervals of a few months and to report at once on the occurrence of noticeable symptoms of any kind." Lewis' conclusions are based largely on a study of the literature.

Eastman,[35] in a study of the literature and more particularly a study of his own experience, embracing 169 cases, reports 5 cases which illustrate the impracticability and often the impossibility of making a diagnosis of certain conditions existing in fibroid tumors prior to their removal; also 2 cases in which women were not operated on when first examined, as they presented no special symptoms at the time. Both of these patients died later without operation, as when seen again they were in such condition that operation was impracticable. The first patient had a fibroid tumor extending to the umbilicus, with few symptoms. The woman refused operation because the tumor was giving no trouble. A year later she presented herself, being eager for operation, but in the meantime she had developed a fatty degeneration of the heart and operation was impracticable, and six weeks later she died. The second patient presented herself not because of suffering, but because, having a large abdomen, her neighbors questioned her chastity. She preferred to wait until cool weather before being operated on. Soon after she was seized with a chill, high temperature, etc., and died. Autopsy showed necrosis. The third patient had some hemorrhagic symptoms and a tumor about the size of a cocoanut. It was not considered a complicated case. On operation and examination necrobiosis was found. The fourth case was a woman with a large tumor, suffering from hemorrhage and pressure symptoms, but able to support herself and a large family as a washerwoman. A diagnosis of uncomplicated fibroid tumor was made. After the removal of the tumor by operation, microscopic studies showed sarcomatous degeneration. The fifth patient had a tumor which she believed was giving her no trouble, although her general health was failing. After operation a microscopic study showed adenocarcinoma of the corpus uteri. His 7 cases all present one common characteristic—the lack of any symptom which would indicate a pathologic lesion other than the tumor itself. They all belong to the class in which the expectant treatment is advised by those who consistently hold to the classical position; occurring in a short series of cases, they offer strong evidence of the unwisdom of this position. Eastman concludes by saying: "I am convinced that all fibromyomata should be removed unless there should be concurrent conditions which render the operation inadvisable."

Bovée,[36] after discussing the teachings of the recent literature on fibroids, says: "I believe the scientific treatment of fibroid tumors should always be extirpation." Bovée is convinced that there is a causal relation between the presence of a fibroid tumor in the uterus and the development of cancer of the corpus.

Goffe[37] says: "All fibroid tumors, wherever situated and whatever their size and regardless of the age of the patient, except in extreme old age, should be removed forthwith." Goffe is impressed with the evidence that fibroids predispose to the development of cancer of the corpus.

Russell[38] says that cessation of the growth and even the spontaneous disappearance of a fibroid must be admitted as possible, though it is so unusual and so uncertain that it would be foolish to calculate on its occurrence. The day is near when, owing to improved technic ensuring greater safety, the discovery of a myoma by the gynecologist will be the signal for its early removal by one of the approved methods. Russell discusses the various secondary consequences of fibroids, and says that experience has taught him that the disease is far more serious than has been thought in the past.

Bland-Sutton,[39] in a paper suggested by the one read by me before the British Gynecological Society in 1901, which was followed by the papers of Cullingworth and Scharlieb, emphasizes the perils and complications of fibroid tumors after the menopause; necrosis and infection of fibroids after the menopause, and cancer of the body of the uterus. He emphasizes the point that the menopause, far from bringing safety and comfort to women having fibroid tumors, increases the dangers of these growths. He concludes his article as follows: "Certainly there is nothing more ironical than a woman spending twenty or even thirty years of her life as a chronic invalid on account of a uterine fibroid, in the expectation that at the menopause she will be restored to health and begin a new life, and then to realize that far from this dream being fulfilled the fibroid becomes necrotic, extruded and septic, and places her life in the gravest peril! and that she may die in spite of surgical intervention."

Polak[40] reports his experience in operating on 38 women having fibroids. In 12 women he performed

32. Gordon: "Further Experience and Observations in Hysterectomy for Fibroids," Trans. Amer. Gyn. Soc., 1895, p. 30.
33. Richardson: "Uterine Fibroids," Boston Med. and Surg. Jour., 1904, vol. cl, No. 2,p. 39.
34. Lewis: "Malignancy in Uterine Myomata," Amer. Jour. Obstet., New York, Oct., 1905, vol. lii, No. 4, p. 481.
35. Eastman: "Innocent Fibromyomata of the Uterus," THE JOURNAL A. M. A., Oct. 21, 1905, p. 1238.
36. Bovée: "The Treatment of Fibroid Tumors of the Uterus," Am. Jour. Obstet., New York, Aug., 1905, p. 203.
37. Goffe: "Fibroid Tumors of the Uterus as a Cause of Cancer," Amer. Jour. Obstet., New York, April, 1905, p. 500.
38. Russell: "Some Cases of Uterine Myoma," Glasgow Med. Jour., vol., lxiii, 1905, p. 241-252.
39. Bland-Sutton: "The Perils and Complications of Fibroids After the Menopause," The Lancet, June 6, 1903, p. 1571.
40. Polak: "Observations on Fibromyomatous Tumors of the Uterus," New York Med. Jour., May 26, 1906, p. 1061.

myomectomy, and in 7 of the 12 it was necessary later to perform a hysterectomy. This experience is so unique as to deserve mention. He says: "There can be no doubt, considering the weight of evidence, that fibromyomata predispose to malignancy. Myomata are more prone than fibromyomata to malignant degeneration, and adenocarcinoma of the body in a myomatous uterus is not infrequent, particularly at or just after the menopause."

Deaver[41] reports his experience in the removal of 250 fibroid tumors by abdominal hysterectomy, and gives a table of the complications which were found. The list of complications was so palpably incomplete that in the discussion on his paper he admitted that the records were by no means exact. Deaver follows the classical lines in his argument, although the number of his operations and the good results secured in the last 100 as compared with his first 150 indicate that favorable cases have sufficient symptoms to cause even a surgeon advocating the traditional attitude to resort to operation.

Haultain[42] is among the few who have written recently on the subject to question the frequency or the importance of malignant degenerations or complications of fibroid tumors. On limited personal material and with scanty reference to the literature, he gives his *ipse dixit* that "malignancy and fibromyomata have an almost independent origin and but slightly affect one another." Nevertheless, he says that out of 9 cases of adenocarcinoma operated on by him 4 were associated with fibroid tumors of the uterus. He makes one point, however, of genuine importance, which is that as fibroid tumors frequently cause sterility, the percentage of cases of cancer of the cervix as compared with cancer of the body of the uterus would be made relatively smaller because of the lesser percentage of labors and of traumatism to the cervix.

OBSTRUCTION OF THE BOWELS, PARTIAL OR COMPLETE, FROM THE PRESSURE OF FIBROID TUMORS.

Partial obstruction of the bowels from fibroid tumors is relatively common. Numerous instances of this type have come under my observation in which obstinate constipation with distension and ultimately partial paralysis or atony of the colon has been due to pressure from fibroids. In such cases digestion is usually much disturbed, with resulting malnutrition, autointoxication and secondary degenerative changes in the blood vessels and kidneys. Another serious result of this condition is that after operation paralysis of the bowel, partial or complete, is not infrequent. I have seen numerous cases in which the life of a woman was in serious jeopardy from this cause, and have seen death ensue in spite of all efforts to get rid of the intestinal gas. Death in such cases is due to heart failure from pressure on the heart through the diaphragm.

Donald,[43] of Manchester, reports an interesting case of acute intestinal obstruction from a fibroid tumor. The obstruction was due to adhesions.

Pellanda[20] states that in the fatal cases in the natural history of the disease, death results from compression of the bowel in about 12 per cent. of the cases.

The literature contains reports of isolated cases, and doubtless a certain percentage of cases of obstruction said to be due to adhesions are primarily due to the presence of a fibroid tumor. Perhaps the most remarkable fact in connection with fibroid tumors is how the fecal contents of the bowel pass by fibroid tumors which apparently absolutely fill the pelvis.

(To be continued.)

41. Deaver: "Hysterectomy for Fibroids of the Uterus," Amer. Jour. Obstet., Dec., 1905, p. 858.
42. Haultain: "Malignant Degenerations or Complications of Fibromyomata of the Uterus," Jour. Obstet. and Gyn. British Empire, August, 1904, p. 120.
43. Donald: Jour. Obstet. and Gyn. British Empire, May, 1906, p. 383.

CASE OF MULTIPLE FIBROSARCOMA OF THE TONGUE,

WITH REMARKS ON THE USE OF TRYPSIN AND AMYLOPSIN IN THE TREATMENT OF MALIGNANT DISEASE.*

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Primary sarcoma of the tongue is a disease so seldom met or recognized and recorded that a case of this character presents features of unusual interest. There appear to be less than forty well authenticated cases on record. Of the various varieties of sarcoma invading this organ, the fibrous seems the least frequent, as only three or four of the cases just mentioned are classified under this head.

History.—N. M., an unmarried female, aged 23, of Irish descent, a domestic, applied in November, 1905, to the Metropolitan Nose and Throat Hospital for treatment, complaining of an enlargement of the back of her tongue, which was causing her much discomfort, as, on account of its size, it made speaking, eating and sleeping difficult. The patient then stated that she had asked for treatment at several hospitals in London, but had been refused operation.

She was referred to me as one of the consultants of the hospital, for an opinion as to the nature of the growth, and the method of treatment to be employed. She gave a negative family, as well as personal history, up to about seven years previously, when she stated that she had first noticed a small growth projecting from the surface, at the back of the tongue, round at the bottom, and somewhat pointed at the top. This was shown to a physician, who pulled it off and treated the resulting sore for a time, and then as the growth began to reappear, left it alone. The patient stated that it grew rapidly for a time and then more slowly, but that of late, the tumor had been enlarging rapidly; she also said that she had had no pain, other than that caused by the mechanical difficulty encountered in speaking, eating and sleeping, especially the latter, as for some time past she had been obliged to sleep in a sitting posture.

Examination.—The girl appeared to be well nourished, but anemic, and rather dull mentally. Examination of the heart, lungs and abdomen failed to reveal anything of an abnormal character; when the mouth cavity was looked into, however, a tumor which nearly occluded the pharynx was found, projecting from the surface of the tongue at the site of the foramen cecum, rather more prominent to the left of the median line than elsewhere and about two and one-half inches by one inch in size. The growth was painless to the touch, but felt elastic almost to the point of fluctuation. The mucous membrane covering the growth was intact and normal in appearance and no glandular enlargement could be made out.

Diagnosis.—Taking into consideration the sex and age of the patient, the location of the tumor, its elasticity and the condition of the mucous membrane covering it, I considered it probable that the neoplasm was made up of thyroid tissue and its removal was advocated.

Operation.—In accordance with this advice, the patient entered the French Hospital and on Nov. 24, 1905, I performed the following operation, with the assistance of Dr. James Tayloe Gwathmey: Dr. Gwathmey anesthetized the patient by his vapor method, by means of a long hollow metal tube of the size and shape of a number 15 English catheter with its end cut off, the anesthetic being delivered directly into the

* Read before the Society of Alumni of Bellevue Hospital at the One Hundred and Second Meeting.

larynx (Fig. 1). This instrument was also employed to retract the tissues, being introduced into and along the side of the mouth nearest the field of operation. A heavy silk suture was then passed through the tongue, just beyond its tip and, by means of this retractor, the tongue, which was freely movable, was drawn well forward and a longitudinal incision, one and a half inches long, was made through the mucous membrane and muscular tissue covering the most prominent portion of the tumor, which was, as has already been stated, to the left of the median line. The tissues were easily reflected from the tumor, which was found to be encapsulated and which was readily shelled out of its bed. It was about one and a half inches in diameter and when the growth was cut into, it was found to consist of soft, fatty looking tissue. The incision in the tongue was closed by suture, which readily controlled the existing hemorrhage which was slight. No effort was made to remove the remaining enlargement on the right side, which had somewhat subsided with the removal of the tumor already mentioned, it being thought that it was due to the pressure exercised on the tissues by the tumor just removed and that in time it would disappear.

Result.—The convalescence proved uneventful and the patient improved very much in general health and in appearance, being now able to sleep in the prone posture, and to swallow with comparative comfort, but her ability to speak distinctly did not improve materially.

Examination of Tumor.—The tumor was submitted for microscopic examination to five eminent pathologists, with the result that three gave opinions favoring fibroma and two fibrosarcoma. Dr. W. R. Williams, pathologist of the French Hospital, through his assistant, Dr. Krumweide, reported as

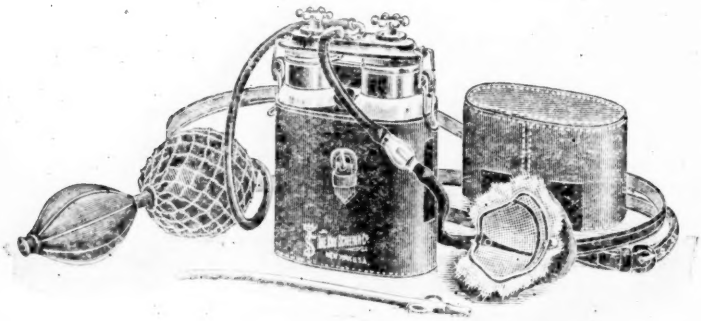

Fig. 1.—Gwathmey's anaesthetizing apparatus for operations about face, nose and mouth.

follows: "Specimen removed from tongue of N. M. is histologically a fibroma, the softness of the tumor is due to edema of the tissues. Though somewhat cellular there is no sarcomatous appearance and it is therefore benign."

Prof. E. K. Dunham of the New York University and Bellevue Hospital Medical College, said: "The specimen of lingual tumor which you sent to me is a fibroma, in most places it is composed of dense fibrous tissue, in other places the tissue is more areolar, the surface of the specimen presents fibers parallel to the surface, apparently due to compression of the surrounding structures. There are only a moderate number of vessels in the specimen and these are of moderate size. There is no suspicion of malignancy."

Dr. F. M. Jeffries of the New York Polyclinic, wrote as follows: "The tumor of tongue from Miss N. M., is a fibrosarcoma, I think it is possessed of but a slight degree of malignancy."

Dr. Jeffries informed me that Professor James Ewing, of Cornell University, had also seen the specimen and concurred with him in his view that the tumor was a fibrosarcoma. As the opinions of the pathologist who had examined the specimen were now equally divided, it was thought to be of sufficient interest to obtain the opinion of Prof. William H. Welch of Johns Hopkins University, and a specimen of the tumor was accordingly sent to him; the following was his reply: "I do not generally quarrel over differences in diagnosis between fibroma and sarcoma, as it is a question ordinarily of richness in cells and, as there is no sharp dividing lines, competent pathologists often differ, and so long as the separation between fibromata and sarcomata is an arbitrary one, it is often a matter of individual judgment which name should be applied. I should prefer to call the tumor of which you send a section a fibroma rather than a sarcoma, as there is so much basement substance. The fresher part of the growth shows fibrillated connective tissue, not richer in cells than many undisputed fibromata. There is an extensive and rather peculiar sclerotic or hyaline transformation going on, and enclosing dense strands and masses of cells of a fibroplastic type. I suppose it is the latter which raises the question of sarcoma; if these cells were getting the upper hand and taking possession of the field, I should incline to the diagnosis of sarcoma, but it looks to me as if the cells were being crushed out and replaced to a considerable extent by the sclerotic or hyaline tissue. I should not consider a tumor of this type likely to metastasize, although if not completely extirpated, it would be likely to recur *in loco*. The old fashioned recurrent fibroids of the surgeons often show much the appearance of your tumor."

Subsequent History.—About the middle of December, the girl resumed her former duties as housemaid and for a time her general bodily health was much improved, as she was now able to breathe, eat and sleep comfortably. A month after her return to work her employer informed me that since the performance of the operation her disposition seemed to have undergone a change for the worse, she being much depressed mentally, very careless as to personal appearance and indifferent as to whether or not she gave satisfaction in her work, which formerly was not the case. This, however, was thought to be largely due to the girl's disappointment of the lack of improvement in her ability to speak distinctly. The enlargement on the right side of the tongue, previously mentioned, failed to diminish in size, as it was hoped it would do and by February 1, it had perceptibly increased in size. Hence an operative procedure for its removal was advised.

Second Operation.—The patient accordingly entered my service at the City Hospital about the middle of the month and assisted by Dr. Gwathmey, a second operation, similar in detail to the one already described, was performed, the incision this time, however, being made over the right side. When the mucous membrane and overlying muscular tissue had been divided and dissected back for a short distance, nine separate encapsulated tumors of various sizes were easily shelled out, the slight hemorrhage being readily controlled by the sutures necessary to close the wound.

Result.—The convalescence was uneventful, the wound healing primarily. The same differences of opinion were expressed by the pathologists who examined the tumors removed at this operation, as in the first instance. Early in March, about three weeks after the performance of the last operation a growth which grew rapidly, was noticed making its appearance in the scar tissue on the right side of the tongue. On April 12, when it was removed, it measured two by one inches in size. This growth was not encapsulated as the other tumors previously removed had been, but was intimately connected with the tongue tissues and a wide cut was made around it.

Examination of Tumor.—When this tumor was submitted to the pathologists, three were in favor of fibrosarcoma, one was in doubt and one retained his original view as to the fibrous character of the neoplasm. Dr. F. M. Jeffries reported as follows: "The last two sets of growth removed from the tongue are identical in structure with those removed at the first operation. Even in view of the opinions expressed that this is a benign growth, I am still of the opinion that we are dealing with a sarcoma; not alone am I influenced by the fact of its frequent return, but still more so by the fact that at the last removal, this same tissue is no longer encapsulated as it was at first, but now invades and replaces the muscular tissue."

Professor Dunham wrote: "In the last specimen of tumor of the tongue received from you on May 7, I find several places, especially blood vessels, in which the tissue is much more highly cellular than in the previous specimens I have seen from the case. This makes me believe that there is a

sarcomatous element in the tumor, and that there is a chance for the development of malignant qualities, though the more highly cellular parts of this specimen are deeply situated and not at the periphery of the growth. There is also evidence in this specimen that the neighboring muscle has been infiltrated with the tumor and that the muscle fibers were undergoing degeneration and atrophy at the time the specimen was removed." In a more recent letter, Dr. Dunham says: "The case is unique in my experience. It seems to me that your suggestion of designating the growth as a fibrosarcoma is wise."

Dr. William R. Williams, by his assistant, Dr. Krumweide, writes: "After further examination of tissue from the case of N. M., I still consider that it is morphologically fibroma. The tissue from the second operation more closely resembles that from the first, that from the third is more like fibrous tissue resulting from scar formation, although there are places which simulate the original growth. In view of the further clinical history, the diagnosis would have to be reconsidered, although the specimens themselves, to my mind, do not suggest sarcoma."

Dr. W. H. Welch writes as follows: "I have examined the sections last sent of the tumor of the tongue. I do not recall having seen in the first set of sections, the structures which I find in these latter ones. There is a peculiar architectural arrangement of the tissue, characterized by bands and coils, cut variously, with nuclei along their margins. These bands and coils, which appear nearly homogeneous with a low power and staining with eosin, show with a high power a finely fibrillar and granular structure. In other places the tissue is wide-meshed, suggestive of edematous connective tissue. Here are long ribbon-shaped cells, with a peculiar longitudinal striation of the cytoplasm. It may be that these cells and bands belong to fibrillated connective tissue; in which case I should call the tumor a fibroma, but my suspicion is aroused of the possibility of a rhabdomyoma, although I can not prove it from your sections, as I do not satisfactorily make out cross-striation. Still in many rhabdomyomata longitudinal striation is the only type of striation which can be distinctly made out. Under the circumstances, it seems to me very important to apply other stains and reactions which will shed light on the nature of the fibrillation in the coils and bands referred to and in certain peculiar elongated cells found in the mucoid-like areas. Mallory's stain for connective tissue fibrils, Weigert's elastic tissue stain and Van Gieson's stains should be applied. Until the question of possible rhabdomyoma is cleared up, I should not be willing to make a positive diagnosis. There is certainly something very peculiar about some of the cells and tissue in the tumor, but the interest is pathologic rather than clinical, I think."

Recurrence.—April 19, a week following the third operation a recurrence in the line of incision was discovered which grew much more rapidly than the former one had, threatening, at the rate of progress it was making, soon to fill up the pharynx. Further attempts to remove the disease by an operation less extensive than the entire removal of the tongue seemed unwise, and even this procedure did not at this time seem to hold out much hope of the patient's permanent recovery.

Administration of Trypsin and Pancreatic Extract.—An editorial in THE JOURNAL of the American Medical Association[1] had directed my attention to the work of Professor John Beard, lecturer in comparative embryology in the University of Edinburgh, concerning the origin and treatment of malignant disease, and as this case was now considered practically a hopeless one, it was determined to test the efficacy of the treatment and some ampoules containing the trypsin preparation for hypodermic use known commercially as injectio trypsini, also some capsules containing three grains of pancreas extract, known commercially as holadin, were obtained from the manufacturers, Fairchild Bros. and Foster of this city. Beginning about April 24, ten minims of the injectio trypsini, diluted with double its volume of sterile water, were injected into the cellular tissue of the patient's left arm over the deltoid every other day, and a capsule containing the pancreatic extract was given an hour before each meal. After about two weeks of treatment the hypodermic injections were given daily, and gradually increased until forty minims were administered daily; this treatment continued for about two weeks, or until June 15.

Result.—At the time this treatment was begun, there could be felt a large growth approximately two by one inches in size at the site of the operation on the right side of the tongue, but well back, and a smaller one behind the first one. Soon after the administration of the trypsin and the pancreatic extract had been begun, it was noticed that the tumors had apparently ceased to increase in size; they remained stationary, however, until the injections were given daily and the dosage increased to fifteen minims. They then slowly began to decrease in size, but when the dosage had been increased to forty minims daily, about June 5, there was a rapid diminution in the size of the growths, especially in the larger one, which was perceptible from day to day, until when the treatment was discontinued about June 15, at the patient's request, the growths were barely perceptible to the touch and the patient was able to speak distinctly for the first time since the treatment began. During the early part of this trypsin treatment, April 24 to June 1, the patient's general health improved greatly as shown by her improved looks, her more cheerful disposition and a gain of eleven pounds in weight, and while she complained of the pain following the injections, no serious inflammatory reaction followed them and no abscess formed. Soon after the dosage had been increased to forty minims daily, the patient began to complain of severe headaches, but as she was of a pronounced hysterical temperament little attention was paid to this, beyond the giving of cathartics. The patient soon began to show signs of mental depression, became very careless of her appearance and of her work; she complained of more or less constant headache, of constipation and looked anemic. At her request, the treatment was discontinued June 15 although, as previously stated, the growths at the back of the tongue had not quite disappeared and it seemed as if only a few more doses would be needed to effect this much to be desired result. The patient continued, however, with more or less regularity to take the capsules containing the pancreatic extract until about the middle of July, when they were finally discontinued.

Fig. 2.—Photomicrograph of section of multiple fibrosarcoma of the tongue.

Administration of Amylopsin.—In a communication to the *Medical Record*, June 23, 1906, Dr. Beard called attention to

1. March 10, 1906, p. 728.

the fact that the trypsin injections are liable to be followed by certain bad symptoms, thought to be due not to the trypsin itself, but to the absorption of septic material from the degenerating tumor. These manifestations were stated to be nausea, vomiting, pain in the back, sleeping in any position and mental and physical torpor, and that these unpleasant symptoms could be made to disappear by the introduction into the body of diastasic ferment. Accordingly some ampoules of a solution of pancreatic diastase amylopsin, prepared for hypodermic use by Fairchild Bros. and Foster and known commercially as injectio amylopsini, were obtained and with the patient's consent, injections of this preparation were given daily, beginning with a dosage of ten minims, increased to twenty. This treatment for a time seemed to make a decided improvement in her condition, she became less morose, complained less of headache and for a time took more interest in her work. She also said that she felt better after the injections. The weather was very hot and trying at this time (July) and at her request the treatment was discontinued after only twelve ampules of the injectio amylopsi had been used. From June 15 to August 15, the neoplasms seemed to remain stationary in size, but by September 1, when the patient was next examined, it was found that the larger of the two growths had undergone a perceptible increase in size; this, the patient said, she had also noticed and was much depressed mentally thereby, but she refused further treatment and passed from under observation.

At this time she did not appear to be in good bodily health, being anemic, constipated, and having frequent headaches; much of this condition under ordinary circumstances could be fairly charged to the discomfort of remaining in the city throughout the heated term, which this year was especially trying. Love affairs were another possible complication.

This case is of interest, aside from its rarity, on account of the difficulty encountered by the pathologists in reaching a conclusion as to whether or not it should be classified as a fibroma or sarcoma, and in connection with this subject the following statement of Virchow's in regard to fibrous tumors should be recalled: "It is a matter of great importance to remember that the boundaries of tuberous fibroma are not clearly defined from those of other tumors, especially those of sarcoma, there being undoubtedly transition forms which exist between them."

From the viewpoint of treatment, the case is also of interest. In the course of an article entitled "The Cancer Problem," Dr. Beard[2] set forth the following scientific reasons on which he bases his recommendations for the treatment of malignant diseases by trypsin: "Any ordinary cancer or sarcoma is a new development of trophoblast due to the attempt of a germ cell to start the cycle anew. It has been established that in the normal life cycle of development in any of the higher animals there are two generations, an asexual one, the larva or phorozoon, and a sexual one, the embryo; that the former was mainly, if not entirely, represented in mammalian development by the trophoblast and that in every normal development the trophoblast is suppressed by the sexual generation, its degeneration commencing at the critical period with the completion of all parts of the embryo. The change in nutrition, initiated at the critical period in vertebrate animals from fishes to man, is based in the commencing functional activity of the pancreas. This introduces an alkaline digestion by means of pancreatic juice with its various ferments. A malignant tumor, a cancer or sarcoma like the trophoblast eats and erodes its way, destroying tissues by an intracellular acid digestion." The enzyme of this intracellular acid digestion, discovered by Eugen Petry[3] in 1899, has been named "malignin" by Beard. Again, the latter states in the course of the article already quoted from: "Briefly, as I conceive it, in normal development, and in a malignant tumor the matter is simply a question of the victory of a stronger enzyme over a weaker one. The whole story is but another example of that antithetic alternation which underlies all the phenomena of living things. The solution of the problem of the functional relation of embryo and trophoblast, how the latter nourishes itself by an intracellular acid peptic digestion and degenerates slowly by a pancreatic or alkaline digestion, becomes at the same time the embryologic if not the medical resolution of the problems of malignant disease, as well as of chorio-epithelioma."

In a late article entitled "Are the Problems of Cancer Insoluble?" Beard[4] says: "Cancer is an irresponsible trophoblast or chorion, the corollary of that thesis is that under the action of injections of trypsin the cells of, say, Jensen's mouse tumor must degenerate. In the cancer ferment malignin and in trypsin we have an antithesis of ferments of which the latter is the most powerful." Acting on these views, Beard inoculated a number of mice with Jensen's mouse tumor and began the injection of two minims of a 1.5 per cent. solution of trypsin in sterilized distilled water into one of them. One of these mice died apparently from the result of an accident on the tenth day, after four of these injections had been given. The postmortem examination revealed no cause of death and but for the presence of the tumor the mouse seemed healthy. Microscopic examination seemed to demonstrate that every single cell of the tumor was in degeneration, fully one-half of them being represented by shapeless masses of particles, probably remains of nuclei, and all the rest were skeleton cells. The somatic tissues of the mouth, as represented by the leucocytes and connective tissue cells, were normal. The second mouse received nine injections in twenty-two days and was then killed and the tumor exposed, the growth being about the size of a lentil. The cells were all found to be degenerated. On the same day that this mouse was killed an untreated control mouse inoculated with the same tumor at the same time died of its cancer; its tumor was as large as the terminal phalanx of a man's thumb.

The publication of the results of the trypsin injections, coupled with the advice that it should be used for patients suffering from malignant disease, based largely on theoretical grounds, and before a reasonable clinical experience had been had with it to enable the investigator to determine how the trypsin should be best prepared for use, the proper dosage and duration of the treatment, and the popular articles concerning this work of Beard's, written by an injudicious friend and published in various lay journals, in my opinion, have been most unfortunate and probably would not have occurred had Beard been a physician. The result could only be prejudicial in many ways to the treatment, no matter on how solid a foundation it may rest. In the first instance, solutions of trypsin wrongly prepared, of improper strength or improperly used by injections into the tissues near the site of the growth, or used for too long or too short a time or in too large or too small doses, would surely lead to unsatisfactory results and to wrong conclusions. Since

2. Lancet, Feb. 4, 1905, page 281.

3. Ein Beitrag zür Chemie maligner Geschwülste, Zeitschrift für Physiol Chemie, vol. xxvii, 1899, p. 398; also 1903; edition Hoppe-Seyler's Handbuch der Chemischen Analyse, p. 387.

4. Medical Press and Circular, Dec. 20, 1905.

January 1 various articles and editorials in medical journals have appeared combating the views of Dr. Beard and condemning the use of trypsin in malignant disease. Notably an article entitled "Trypsin in Malignant Growths," by Dr. W. A. Pusey,[5] of Chicago, who makes the following statement: "In one or two patients there was bitter complaint occasionally after an injection, frequent inflammatory swellings resulted and in six or eight instances abscesses developed at the site of injection." In one of his cases Pusey believes that the patient was positively benefited by the treatment with trypsin and that appreciable harm was done to others. These last had chills and Pusey believes failed more rapidly than they were failing before. Dr. Beard,[6] in a communication entitled "Trypsin and Amylopsin in Malignant Growths," makes the following statement: "The treatment has really only been in use for six months and naturally it is still in the experimental phase of its existence. The results recorded by the author (Pusey) can hardly be called good by any stretch of the imagination and did I not know of better ones I, as the scientific originator of this treatment, might well despair of it. My lips are closed regarding results, but shortly they will be forthcoming and the unfavorable cases will not be in proportion to the favorable ones as seven to one. As to abscesses, I have known as many as eighty ampoules to be given in America to a single patient with only one abscess and altogether I have as yet only heard of about six abscesses all told, excluding the record number mentioned by Dr. Pusey. Over here we (Dr. Robert Maguire, F.R.C.P., and myself) have, I think, considerably improved this treatment. The very good results obtained in certain very serious cases in Europe (to name a few, a case of cancer of the rectum, one of inoperable cancer of the tongue and two of cancer of the uterus) point to the following as on the lines of right treatment. After a few preliminary injections of small amounts (half an ampoule of the injectio trypsin) the course should be: 1. Injectio trypsini daily up to two ampoules for three or four weeks. 2. Then one ampoule of injectio trypsini on a certain day, followed by an ampoule of injectio amylopsini on the next day, and so on alternately for about four weeks. 3. Lastly, one or even two ampoules of the new injectio amylopsini daily for about four weeks, or longer, in the judgment of the physician. If using this injection any injections be still not well borne, the injection should be further diluted and given more frequently, but so that the total daily amount is not thereby diminished."

In making these injections I have found the following described technic to be satisfactory: The ampoule containing the trypsin or amylopsin is washed with 95 per cent. alcohol before it is opened. The hypodermic needle and the patient's skin at the site of the puncture are also washed with the same fluid and the wound made by the needle is sealed with collodion. Judging by this formula of treatment, it would appear that the injectio amylopsini should have been used much earlier than it was in my case and should have been continued longer. For the failure to do this last the patient was responsible.

As has already been stated, trypsin is thought by Beard to have no harmful effect on normal body tissue, the soma or sexual product, and that whatever unpleasant symptoms arise in the course of this treatment are due to absorption of septic material from the degenerating tumor mass. The position, scientific attainments and reputation of Professor Beard entitle him to a respectful hearing, and no good reason known to me can be advanced at the present time for not carefully carrying out and further investigating this line of treatment in at least the inoperable cases of malignant disease that may come under our care, until the truth or falsity of Dr. Beard's views are fully established. For what otherwise have we at this time to offer these unfortunate people?

By presenting this case, inconclusive as it is, it has merely been my wish to lay the facts before you and to call serious attention to a most important and interesting subject, which might otherwise be overlooked, largely on account of its unfortunate and untimely exploitation, in the hope that further discussions of and clinical experience with trypsin and amylopsin within a reasonable time will demonstrate beyond question that we have at our disposal a sure and efficient remedy for the treatment of malignant disease.

55 West Thirty-sixth Street.

4. THE JOURNAL A. M. A., June 9, 1906, page 1763.
5. THE JOURNAL A. M. A., Aug. 11, 1906, p. 445.

DISCUSSION.

PROF. E. K. DUNHAM limited his remarks to points concerning sarcoma: 1. Tumors of interstitial type are often heterogeneous in structure, ranging from portions resembling the more highly differentiated connective tissues to other portions that are clearly sarcomatous in character. This heterogeneity renders both diagnosis and prognosis difficult unless a number of portions of a given growth falling within this growth of tumors are examined. These facts, he said, amply explain many differences of opinion regarding a given tumor when each opinion is based on a different portion of the growth. 2. The malignancy of a connective tissue tumor can best be estimated by considering the tendency of the new growth to infiltrate the surrounding tissues and the liability to metastasis revealed by its structure, particularly the relations of the cells of the neoplasm to blood vessels and lymphatics. In these respects it has seemed to him that individual sarcomata of nearly if not quite the same general type as regards the cells of the tumors, differ considerably and that, therefore, they differ in degrees of malignancy. 3. In the tumor of the tongue under discussion, it appeared to him that the liability to undergo metastasis was very slight, there appeared to be little, if any, infiltration of neighboring structures and the cells of the tumor did not appear to be intimately related to those of the vascular walls. In the last specimen examined, the tendency of the cells to produce fibrous intracellular substance appeared in places to be very slight; for this reason he concluded that there was probably a sarcomatous element in the growth.

PROFESSOR JEFFRIES confined his few remarks to the pathologic viewpoint. This case, said to be fibrosarcoma, is certainly, he said, unique in two ways: The apparent discrepancy in the clinical history, which points to malignancy, and the microscopic examination, which has not pointed to any really great degrees of malignancy. In this he considers it unique. It is also unique in its structure. He declared his belief that no pathologist who has examined this tumor has ever seen anything like it, each one spoke of it as being a structure such as he had never seen. When Professor Jeffries first saw the first growth, even though at that time there was nothing in the history to point to malignancy, he was led to conclude that there was a sarcomatous element to it, by its structure and its marked vascularity, notwithstanding the fact that it was an encapsulated growth. At the second removal, still there was a chance of a mistake, because the second removal was from the opposite side of the tongue, and there was a possibility that the growth removed at that time was there at the time of the removal of the original portion, and was an effect of the operation. Perhaps the partial removal of the original growth had allowed the subsequent development of small growths to manifest themselves. At the third operation a different state of affairs existed; in the first place, the growth appeared in the cicatrix; that was one point

markedly like malignancy. Again when examined microscopically it was found that it no longer possessed a capsule, at least it seemed so. The growth was entering muscular tissue and was causing atrophy of the muscle fiber, both simple and numerical, and was invading the structure just as in malignancy. It is at times difficult for a pathologist to decide between sarcoma and fibroma as we do not really know the boundary line. It is a fact that a fibroma may become a sarcoma. In regard to Professor Welch's theory, or suggestion, of the possibility of it being a rhabdomyoma, Professor Jeffries took advantage of his suggestion and made some differential stains in the hope of clearing the matter up; and in these different sections he found nothing that would lead him to diagnose rhabdomyoma.

PROFESSOR EWING said that it is clear that the growth lies on the border line between fibroma and sarcoma, and probably if the section had been submitted to one hundred pathologists there would have been an equal division of opinion regarding its position. This result would not in his opinion, have demonstrated any error in diagnosis on anyone's part, but rather that the growth at first was actually capable of pursuing either a benign or a malignant course, as determined by the influences to which it was subsequently exposed. The separation between fibroma and sarcoma while not a point of much theoretical interest is one on which the clinician must lay a great practical emphasis, since the treatment depends on the distinction. It should be recognized by the clinician however, that the pathologist can not always make this distinction with certainty, and is not to be blamed or accused of error in such cases when his diagnosis fails to accord with subsequent developments. In this case Professor Ewing agreed with Professor Jeffries that the tumor would probably prove locally malignant, on account of its cellular characters, and from the type of tissue in which it was located. The announcement of Professor Beard that he had succeeded in clearing up the ultimate nature of carcinoma and had proposed an effectual cure has naturally been received with much incredulity, chiefly on account of the remarkable theories constructed as a basis for the claims. Professor Ewing has attempted to familiarize himself with Professor Beard's views, but has been entirely unable to follow his reasoning, either embryologic or physiologic. This result Professor Ewing was first inclined to attribute to comparative lack of acquaintance with these branches of science, but he has talked with embryologists and physiologists and has found that they too, have been unable to grasp his meaning. It is certain that Professor Beard's theories are either erroneous or considerably in advance of contemporaneous science. Professor Ewing said that he knows nothing of the results of treatment by trypsin, but in Toronto he learned from Dr. Bashford that the Imperial Cancer Research Commission had given it a very thorough trial and had no good results to report from it. The results in the case described by Dr. Wiggin astonish him. Diminution in the bulk of the tumor during administration of trypsin seem reasonably to be referred to the treatment. The result requires explanation and repetition. While Professor Beard's theory lacks any definite foundation and while bad rather than good results should be expected from his procedure, the actual position of the treatment can be determined only by concrete experience with it.

DR. WILLARD H. ROGERS said that his experience with trypsin in cancer is limited to one case. A woman consulted him a year ago last July, complaining of an irritable bladder, which nothing seemed to relieve. On examination of the rectum he discovered a growth about the size of a silver dollar situated on the anterior wall, low down. He asked her to go with him to see Dr. Kelsey, who pronounced it malignant and advised an operation at once. She refused. Dr. Rogers did not see her again until November, when he took her to see Dr. Parker Syms, who refused to operate as the growth then occupied the whole rectum. The woman grew steadily worse until April, when Dr. Rogers began the use of the injectio trypsini with holadin capsules internally. She is in as good condition to-day as she was in April; the growth has positively diminished in size. Where Dr. Rogers could apply the lotion the growths have almost disappeared. That it retards malignant growths, there is no doubt in his mind.

DR. C. C. RICE, New York, said that he reported a case of carcinoma of the left vocal cord in a man aged 70, in a paper which he read before the American Laryngological Association, last June. The growth involved the entire vocal band. He did not remove any portion of it for microscopic examination, because he wished to notice the effect of the injectio trypsini on it. Both Dr. Ferguson and Dr. Rice felt positive of the diagnosis on the physical appearance of the growth. They administered the pancreatic capsules for a period of two months, and gave the injections of pancreatic extract every day for thirty or forty days, in doses of from seven to ten minims each. Occasionally they were obliged to omit the injections because the patient suffered from disagreeable constitutional symptoms. In one week after the injections were commenced, the growth became very noticeably softer, and seemed congested. At the end of another ten days, perhaps three weeks from the beginning of the treatment, the anterior half of the growth sloughed off. The patient remained under treatment about a month longer, when he was obliged to go to Europe. The larynx did not improve, apparently, during the last three weeks of the treatment, so that when he went away they had to report the removal (disappearance) of only about two-thirds of the growth; the remaining one-third remained on the vocal cord. Dr. Rice saw the patient during the last week in September and found that the entire growth had disappeared and that the vocal cord was almost normal. He intends reporting the case more fully later.

DR. HARRAR said that he had but one case which was treated with trypsin and which Dr. Wiggin asked him to report. The patient had recurrent carcinoma of the rectum, and was operated upon two and a half years ago. For about one and a half years the patient, a woman, went on without any recurrence, until last January, recurrence began, curiously enough at one side of the anus, in the buttock. Dr. Harrar saw her in May, the growth was then about the size of a walnut with an ulcerated surface in the rectal mucous membrane. Of her own volition she had been taking holadin three times a day since April, and using lotio pancreatis on the ulcer. Dr. Harrar began the injections of trypsin 5 cgm. twice a week, increasing to 15 cgm. a week, up to the middle of August. Then for two weeks the injections were ommitted. Full ampoule doses were used, about 15 c. Injections were not made into the tumor, as apparently was done by Dr. Pusey of Chicago, but into the adjacent healthy tissue. There was no local reactions and no abscesses occurred from the injections. Mild constitutional symptoms occurred during the first few weeks; slight stupor, etc. The tumor had steadily increased up to this time; at no period was there any diminished size of the tumor at all; during August the general condition of the patient was about the same as before treatment was instituted. She was able to be up and about, but seemed to have very little if any benefit from the trypsin. The tumor made very rapid advance during the cessation of the injections and is at present about the size of one's fist. The tumor seems to grow more slowly while the injections are used than when they are discontinued.

Collateral Regeneration of Nerve Fibers.—Nageotte contributes to the *Nouvelle Iconographie de la Salpêtrière*, xix, No. 3, 1906, a monograph on the subject of what he calls the collateral regeneration of nerve fibers. It occurs independently of the terminal regeneration, the only form at present recognized in the text-books. In the collateral regeneration the new nerve fibers sprout at points nearer the vital center of the neuron. He noticed an excessive, pathologic regeneration of this kind in the spinal ganglia in tabes, where it strives to take the place of the destroyed root axis-cylinder, without ever being successful in accomplishing its physiologic purpose, at least in the cases studied. The article is profusely and handsomely illustrated, like all those that appear in this journal, founded by Charcot. As the name implies, the records are kept mainly by profuse photographic reproduction. Each issue has at least one article devoted to medicine in classic art.

Clinical Notes

HEMORRHAGE FROM THE STUMP FOLLOWING APPENDECTOMY.

WITH A REPORT OF THREE CASES.*

WILLIAM HESSERT, M.D.

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CHICAGO.

It has been my misfortune, during the year past, to have had three cases of postoperative bleeding from the stump following appendectomy, with a fatal issue in one instance. An experience of this kind would naturally lead one to ponder over the cause of the accident and to change the technic if found to be at fault. My method in the past had been the widely practiced one of clamping the appendix at its base, cutting off the distal portion flush with the forceps, inserting a purse-string suture around the base, releasing the forceps and inverting the stump while the suture is tied. The case histories are as follows:

CASE 1.—Female, aged 13.

History.—The patient has had four attacks of appendicitis during the past two years, all mild in character. The present attack began with severe pain in the right iliac fossa, vomiting and constipation.

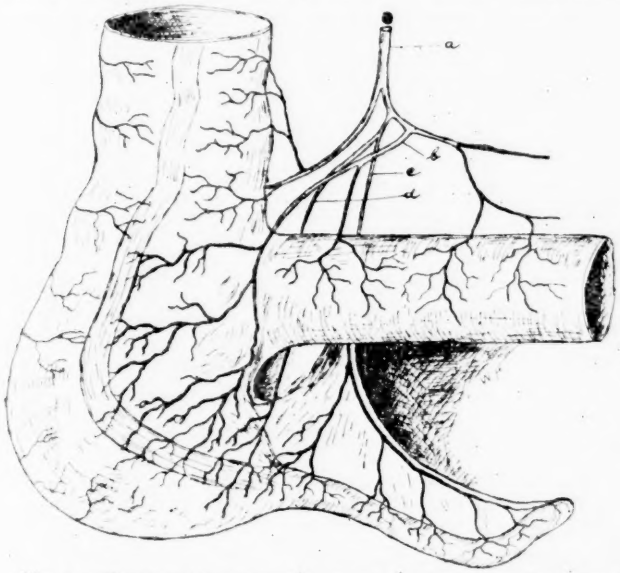

Fig. 1.—The ileocolic artery (*a*) gives off a branch to the ascending colon and an anterior and a posterior cecal artery (*d*). The appendical artery (*c*) arises in this figure from the posterior cecal artery. It passes behind the ileum to the free border of the mesappendix, where it gives off five (sometimes more) branches.

Examination.—I saw her after twenty-four hours. She was a strong, well-nourished girl. The general condition was good. The abdomen, flat, very tender over appendix, with reflex muscular rigidity. Temperature was 100; pulse 100.

Blood Count: This showed 9,000 white blood corpuscles.

Urine: Negative.

Operation.—Gas and ether anesthesia. The operation was well borne. Short muscle-splitting incision was made. The appendix was free in the abdominal cavity; it was moderately acutely inflamed, not perforated. The mesenteric artery was ligated with catgut and the appendix was divided between two forceps clamped on the base. A silk purse-string suture was inserted with inversion of stump and tying of suture. A second row of Lembert sutures was applied. No oozing from mesentery or stump was noticed at the time. The colon and the base of the appendix were in a healthy condition. Operation was concluded in a short time and the patient left the table in excellent condition. There was no drainage.

Postoperative History.—The girl recovered quickly from the anesthetic and vomited little. In the evening of the day of operation the nurse noticed a slight bloody stain in the bed and believing it to be menstrual blood, she applied a pad, the patient's condition being so good as to excite no suspicion. Next morning, twenty-four hours after operation, when I saw her, it was at once apparent that she was suffering from internal hemorrhage and that the blood she had passed in small amounts during the night had come from the bowels. She was very pale, clammy, restless, taking deep sighs at intervals. Temperature was 98, pulse 120, small and thready. She was given Dover's powder and Dermatol by mouth, food was withheld; strychnin and adrenalin were given hypodermically. The foot of the bed was elevated and an ice bag placed over the seat of operation. During the day she passed about 600 c.c. of fluid red blood, later it was dark and clotted. After twelve hours, toward evening, reaction set in; she warmed up and the skin became dry. The pulse, which had gone up to 140, became 110; she was not so restless. She was not pale. The bleeding was evidently checked, for she steadily improved. No blood was passed for another day, and then the clots were very dark. After several days she showed no signs of the hemorrhage save some weakness and pallor. Cathartics were withheld for some days longer. The wound healed by primary union. Ultimate recovery complete.

CASE 2.—Female, married, aged 25.

History.—During the investigation incident to an operation for cystic ovaries and retroflexion, the appendix was found to be five inches long and to contain three large fecal concretions. The pelvic operation being briefly concluded and the patient's condition being good, it was deemed justifiable to remove the appendix, even though there was no history of previous attacks of appendicitis. The organ was removed by the same technic as employed in Case 1.

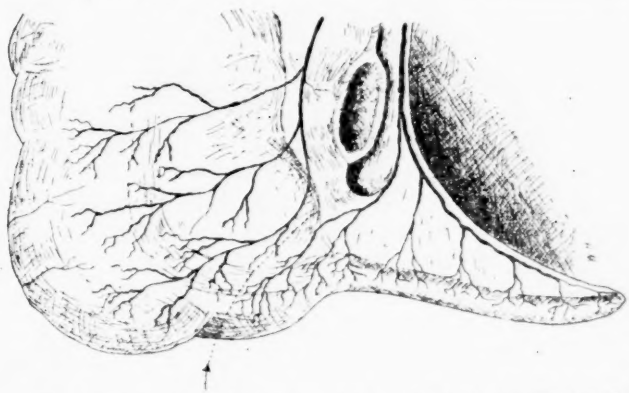

Fig. 2.—Type 1. Sixty-two per cent. Dotted line indicates the division between the cecal and appendiceal vessels.

Postoperative History.—The patient left the table in good condition and did well until evening, about twelve hours after operation. Then there occurred a rather sudden change; she went into collapse, the pulse rose from 85 to 110, and became weak and thready. The woman became pale and restless, with an anxious expression, and cold, clammy extremities. After being hurriedly summoned, and while sitting at the bedside, a large amount of dark and bright red blood was passed with a gush by rectum. The same treatment was employed as in Case 1. The advisability of reopening the abdomen was considered. To operate in such a collapsed condition, however, would only hasten a fatal issue, and if a reaction were waited for and did occur, it would probably indicate a cessation of the bleeding, and contraindcate any intervention. The patient died thirty-six hours after the onset of symptoms. She was subjected to the most heroic treatment: Intravenous saline infusions with adrenalin, stimulation, ice bags, lead and opium internally. All were of no avail. She seemed to rally at times and react, so that we thought that the active bleeding had stopped, but a fresh gush of blood by rectum would dispel

* Read before the Chicago Medical Society, Oct. 10, 1906. The discussion which followed this paper is given on page 2032 of this issue.

our hopes again. This patient lost nearly three liters of blood by rectum. No autopsy was permitted.

CASE 3.—Male, aged 23.

History.—The patient was a strong, robust young man who had always been well, with the exception of numerous mild attacks of appendicitis during the last two years. The last attack occurred three weeks before operation; some indefinite pain still persisted in the right iliac fossa; otherwise all the signs of the last attack had subsided.

Examination.—The chest was negative. There was some slight tenderness in the right iliac region. Urine was negative. There was no leucocytosis.

Operation.—Gas and ether anesthesia was well borne. A small muscle-splitting incision was made, which had to be enlarged somewhat later. The appendix was entirely post cecal. There was no mesoappendix. The cecum was drawn to the inner side, the peritoneum was incised over the appendix, and the latter liberated. There was only slight bleeding and one cat-gut ligature was inserted near the base. When the organ was delivered and held up by the tip, no bleeding was observed. The base was clamped with two forceps and the appendix severed between them. The purstring suture of cat-gut was then inserted and following the advice of Dr. M. L. Harris I passed an extra loop at the point usually corresponding with the insertion of the mesoappendix, but as we had no mesoappendix in this case I was in doubt as to any benefit to be derived from this procedure. The stump was inverted and an extra row of sutures inserted. The appendix was three inches long, sclerosed, thickened and presented two constrictions. Operation was completed in the usual manner and the patient left the table in excellent condition.

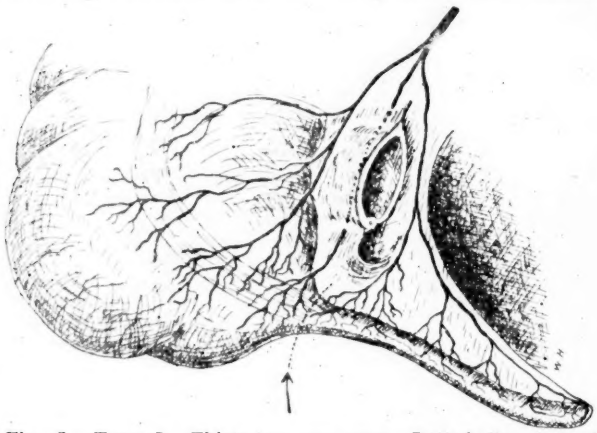

Fig. 3.—Type 2. Thirty-two per cent. Dotted line indicates line of division between circulation of cecum and appendix.

Postoperative History.—The evening of the day of operation there was a slight collapse. The pulse rose from 80 to 110. The man became pale, clammy and restless, with deep sighing. About 200 c.c. dark fluid escaped by rectum. He was put on the treatment already outlined. His condition remained about the same during the next day, and he frequently passed dark clots. On the third day the condition had greatly improved; reaction set in and no more blood was evacuated. He then went on to an uninterrupted recovery; the wound healed by primary union.

In order to understand how it is possible that such copious bleeding can occur, we must consider, first, that the bleeding vessel, though comparatively small, pours its contents into the lumen of the colon. The peristaltic action carries the clots away as fast as they are formed and there is no pressure from without exerted on the bleeding point and nothing to hasten the formation of a thrombus; it just oozes without hindrance.

Furthermore, the blood supply of the cecum and appendix must be considered. The ileocolic artery, a branch of the superior mesenteric, supplies the ileocecal region. The ileocolic divides into the anterior and posterior ileocecal arteries (Fig. 1). The appendiceal artery arises variously from the ileocolic or posterior ileocecal artery. The main branch passes down along the free border of the mesoappendix and usually gives off about five branches to the appendix. In a general way the anterior ileocecal artery supplies the anterior aspect of the cecum, and the posterior ileocecal the posterior portion. The cecoappendiceal angle is thus variously supplied by the anterior and posterior ileocecal and appendiceal arteries. There is an excellent description of the anatomy in Kelly's work on the appendix from which I have largely drawn.

There are various types of circulation, the commonest being represented by Figure 2. This form comprises 62 per cent. of the cases, and here the division of the cecal and appendiceal vessels is well up on the cecum, as indicated by the dotted line in Figure 2. In the second type (Fig. 3), the dividing line is at the cecoappendicular junction, and is the form in 32 per cent. of the cases. The third type (Fig. 4) obtains in 5 per cent. and is the one where the dividing line is well up on the appendix a variable distance. In 1 per cent. of the cases there is a broad anastomosis in the mesoappendix between the cecal and appendiceal arteries (Kelly).

It is apparent from the anatomy that after ligature of the appendiceal artery or its branches the bleeding from the stump will have been controlled in Types 1 and 2, but not necessarily in Type 3, where the blood stream flows distalward. It is in cases in which this type of circulation prevails that postoperative bleeding

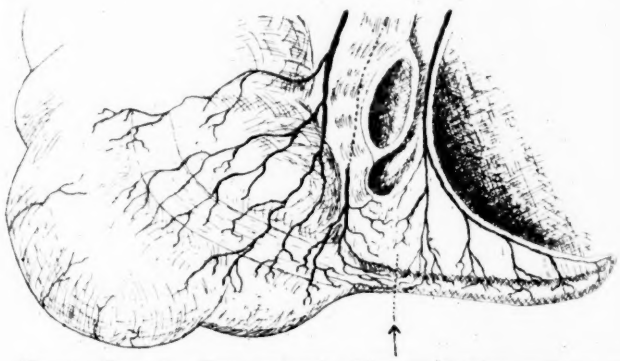

Fig. 4.—Type 3. Five per cent.—Line of division well up on appendix. Cecal vessels supply base of appendix. This is the type where the stump may bleed unless ligated or cauterized.

may occur. I have recently noticed in a few cases that after ligature of the appendicular artery and cutting the mesoappendix there were still a few actively bleeding points on the appendix, which necessarily derived their supply from the cecum. One can conceive also that in cases in which the appendix is severed close to the cecum and inverted that there might easily be oozing from the stump due to the blood pressure in the cecum alone without regard to any particular type of circulation.

The general principles involved in dealing with the stump are the following: ,

1. Ligation, excision of appendix, sterilization with exposure of stump.
2. Ligation, excision, sterilization with burying of stump, cuff method.
3. Crushing, excision and inversion of stump.
4. Crushing, ligation, excision, sterilization and burying of stump.
5. Amputation by the knife flush with the cecum, and suture.
6. Amputation by means of cautery.

There are many and various modifications of all methods, but the general principles involved are practically as above outlined

Mere crushing of the stump with forceps is no sure safeguard against bleeding. My cases have demonstrated that.

The use of the cautery clamp is perhaps the best and safest method of dealing with the stump. It effectually sterilizes the cut end and efficiently guards against bleeding. One has not always the necessary appliances at hand, however, in which case I would consider method No. 4 best. The appendix is grasped at its base by a strong forceps and thoroughly crushed; this forces most of the mucosa up and down, so that the crushed portion is reduced mostly to fibrous and connective tissue. The forceps is released and a catgut ligature is tied around the crushed portion and the appendix cut away. As a safeguard the distal portion of the appendix may be grasped with a light pair of forceps before cutting, to guard against any escape of contents. The stump, cut close to the ligature, contains little, if any mucosa, but it can yet be sterilized with carbolic acid, if desired. The stump is then buried under a row of Lembert sutures. Any method, though, otherwise surgically correct, which does not absolutely provide against hemorrhage is faulty. Harris' method of passing the extra loop does not apply in all cases and, therefore, can not be considered as always safe.

In conclusion, I will say that I have reported these three cases to show that hemorrhage from the stump is a real danger, which lurks in an operation usually considered as being comparatively safe. Furthermore, the operative technic should, among other things, make provision for the prevention of such an accident.

BRADYCARDIA IN APPENDICITIS.*

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A careful research of the literature at my command has failed to reveal any mention of bradycardia in appendicitis, the nearest approach thereto being the statement that the pulse and temperature are not to be relied on to too great a degree, as they are both, at times, capricious, even rarely being normal in the presence of a virulent condition. It is generally acknowledged that the symptoms of gangrenous appendicitis may be latent and exceedingly deceptive, and every surgeon realizes that early recognition and prompt interference is the only harbor of safety in this malignant form of appendicitis; and, conversely, that danger reposes on the rocks of tardy enlightenment and delayed operation, which has wrecked many surgical mariners, and still continues to augment our mortality rate in this disease. Hence the great importance attaching to any new symptom which may project further light on a given case prior to the development of general peritonitis or prior to operation.

If further observation should prove this symptom to be a reliable one, its importance would be difficult to overestimate, for in my series of cases it appeared, if not at the incipiency of the disease, yet early, at a time when knowledge of the pathology of the condition is most pertinent and most difficult to obtain; and especially so in this type of appendicitis, wherein the formation of protective adhesions is the most improbable. That it is reliable in some cases can not be questioned, and how frequently it occurs becomes of interest; but the cases observed since the symptom was first noted are too few to make percentage estimate of value. To be sure, we all see cases of appendicitis with tachycardia, which, on operation, manifest a gangrenous condition; this is usual, but I do not recall encountering bradycardia in a case of appendicitis that did not present gangrene.

In the last 6 cases of gangrenous appendicitis in which this symptom was evinced, the diagnosis of the gangrenous state was made before operation, based on the bradycardia alone. So it would appear from this, that given a case presenting other unmistakable signs of appendicitis, with a subnormal pulse, the tentative diagnosis of gangrene, with some reason, may be maintained. I should here caution the hasty to ascertain if possible the normal pulse for the individual in hand; for a bradycardia may be marked, and yet that slow pulse may be normal for a given patient. If this individual characteristic does exist, however, patients of the better class are often cognizant of the fact.

The cause of this symptom in appendicitis is probably to be ascribed to the absorption of a ptomain or ptomains into the system, which, during circulation, act on the cardiac centers or ganglia, as is not infrequently seen in jaundice, chronic digestive disturbances, etc. It is not akin to the slow pulse observed during convalescence from some of the acute fevers, wherein it is likely evidence of impaired reactive power, a result of inanition.

To avoid superfluous verbiage but two cases are briefly abstracted from my records. Case 1 is interesting in revealing a definite diminution of the pulse rate after the presumable development of the condition causing gangrene.

CASE 1.—Male, aged 33, was seen on the evening of August 2. Past history was negative.

Present Illness.—This began the evening of August 1, with pain in the abdomen, not localized; August 2 it was localized at the umbilicus. There was slight increased frequency of micturition.

Examination.—There was slight tenderness in right iliac fossa. Temperature, 98.4; pulse, 76.

Course of Disease.—August 5: No pain if patient remained quiet but tenderness still remained as on August 2. No chill nor sweating. Bowels regular. Temperature, 98.4; pulse, 64.

Operation.—The usual gridiron incision was made. The appendix was found constricted at the junction of the middle with the distal third by adhesions. It was gangrenous and swollen beyond the point of constriction. The appendix was removed, a purse-string suture was applied to stump, and abdomen was closed. Recovery was uneventful.

The chief interest in this case is to be found in the drop in pulse rate, which may be explained as follows: The mild adhesive inflammation was not sufficient to cause any marked trouble beyond moderate pain and tenderness, until the contracting adhesions constricted the appendix sufficiently to induce necrosis, when, as a result of the absorption of ptomains so produced, the pulse lowered, which, with the diagnosis of mild appendicitis made three days earlier, the assumption that gangrene had supervened seemed justified.

CASE 2.—Male, aged 29, unusually well developed, was seen at 8 p. m., September 9. Past history is unimportant.

Present Illness.—September 8, at 3 p. m., he first noticed slight pain in abdomen, since which time it had increased in severity, until when seen it was almost unbearable. Bowels were regular. Micturition was slightly more frequent than usual.

Examination.—There was tenderness over the entire abdomen, greatest in the right lower quadrant, particularly at McBurney's point. Temperature, 98.2; pulse, 60.

Operation.—Operation was advised but consent was not obtained until the following evening, during which interval food

* Read at the Annual Meeting of the Colorado State Medical Society, Oct. 9-11, 1906.

was withheld and an ice bag applied, which promptly relieved pain. The operation disclosed the expected gangrenous appendix, which, with a portion of the cecum was black and very friable. The gangrenous area was removed. The abdomen was closed as usual after careful sponging. Recovery was uneventful.

This case merely illustrates the typical case exhibiting bradycardia as a symptom of gangrenous appendicitis.

DEATH FROM RATTLESNAKE BITE.

W. A. LEWIS, M.D.
ENTERPRISE, ALA.

Patient.—A boy, aged 14, was bitten by a large rattlesnake, Oct. 7, 1906. A companion tied a cord around the leg above the bite, killed the snake, and brought the boy home.

Examination.—I saw the boy something over two hours after he was bitten. I found that he was bitten on the calf of the right leg about the junction of the upper with the middle third, both fangs having penetrated their entire length. The cord was very tightly drawn above the knee and the circulation was nearly cut off. The points of entrance of the fangs were ecchymotic and the entire leg was greatly swollen. The patient complained of pain. His condition indicated the absorption of large quantities of poison. The pulse was about 140 and weak, the extremities were cold, and he was considerably nauseated.

Treatment.—I made free crucial incisions where the fangs entered and extracted as much blood and poison by suction with the mouth as possible. Then I injected several syringefuls of warm saturated solution of potassium permanganate in and around the wound and tied another ligature around the limb above the one already applied, loosening the first a little, but drawing it tight again in a few seconds. During the entire time that I was with patient I occasionally relaxed one of the constricting bands slightly for a few seconds. He was covered warmly and bottles of hot water were placed around him. I gave 1/30 grain of strychnin hypodermically, following it in a few minutes by 15 minims of solution of adrenalin (1/1,000), and also gave a teaspoonful of aromatic spirits of ammonia, but this was soon rejected by vomiting. Patient called for water frequently and received several spoonfuls of weak toddy, but I think he vomited all internal remedies. Reaction soon set in, the pulse became slower and of greater volume, the extremities got warm, the mind was clear, and he did not complain of as intense pain as at first. Within an hour and a half the hypodermic was repeated, giving 1/60 grain of strychnin and 10 minims of adrenalin solution. Hot carbolized cloths were kept applied to the wound, promoting some bleeding.

Patient held his own for about two hours, but then began to decline rapidly, the pulse becoming weak and rapid (about 150), the respiration much faster, soon reaching 65 per minute. The bowels moved several times, the kidneys acted a little, and patient became restless, though the mind was clear. Stimulating hypodermics failed to have the desired effect and the patient died six hours after being bitten.

ACETANILID POISONING BY HEADACHE TABLETS.

D. CASSADY, M.D.
BISBEE, ARIZ.

History.—On the evening of Sept. 7, 1906, I was called hurriedly to attend Mrs. L., a large, fleshy Mexican woman, about 45 years of age. On questioning the family I learned that she had been in good health with the exception of being subject to severe headaches, for which she was in the habit of taking headache tablets. That afternoon she had bought a package of Stearn's Headache Cure, and had taken one tablet every hour until she had taken three tablets. That was the only drug or medicine she had taken that day.

Examination.—I found her lying on a bed gasping for breath. She had the appearance of extreme prostration and weakness. Her lips and face were dark blue, her skin was cold and damp, and her pupils were dilated. Her pulse was small, soft, and almost imperceptible.

Diagnosis.—The diagnosis seemed very clear, more particularly as I had previously seen cases of acetanilid poisoning.

Treatment.—She had vomited a few minutes before I arrived, but to empty the stomach completely I gave her mustard in warm water, which proved very efficient. I immediately give her a hypodermic injection of 1/15 gr. strychnin nitrate and 1/200 gr. of atropin sulphate. I applied heat externally by means of hot water bottles and hot stove lids, and covered her well with blankets. I prescribed a tablespoonful of brandy in water every fifteen minutes. In half an hour I gave her another hypodermic of strychnin, 1/30 gr., and a third dose an hour and a half later. By this time she was feeling considerably better, her skin was getting warm, and her pulse was moderately strong. Next morning I found her resting easy but very weak. In the next few days she gradually regained her normal condition of health.

DERMATITIS FROM BUTTER COLORING.

D. LICHTY, M.D.
ROCKFORD, ILL.

In view of the present interest in pure foods, the following case may be interesting and instructive:

Patient.—A man, American, aged 63, of medium height, weight 143 pounds.

History.—The man was acting commissary for his wife, who keeps a large boarding-house. He related that he had been persuaded to purchase some of the numerous brands of spurious butter on the market. As the manufacturer and the seller are not allowed to color these products the retail merchant furnished him with a small capsule of a coloring material, about the size of a 2 grain capsule of quinin, with which he was supposed to tint the product as from the "Meadow Brook Farm" or the "Heather Hills" or "Clover Vales." He hastily slipped this capsule into his trousers pocket and hurried toward home with his purchase. The capsule was not made to withstand autumn temperature and body humidity and soon melted and the coloring material filtered through the thin fabric of his pocket and on to his leg.

Examination.—When I first saw him he looked sick and worried, though he had no history of rigor and malaise, nor had he temperature. On the anterior surface of the thigh, extending from Poupart's ligament to the top of the patella, the skin was of an angry, dusky hue, with regular and raised margins at the sides. Over the area were about twenty well-raised blebs filled with a pinkish serum; the largest were at the outer margin and were about 3 cm. in diameter and about as high; scattered over the remainder of the area were many smaller ones from about 1 to 2 mm. in diameter and height. On the front of the left wrist, which he had involuntarily grasped after finding his right hand stained with the product, was also a diffuse inflammatory area of the dimensions of his hand, but less intense.

Treatment.—A brisk saline cathartic with an alkaline wash and a soothing salve comprised the systemic and local treatment. The inflammation gradually and uninterruptedly subsided, and in about a week the desquamation was complete.

There remains a redness tenderer than from any pathologic desquamation, the line of demarcation being yet very distinct, after seven weeks.

I was told by a well-informed local dyer that this coloring substance is "turmerin," an anilin or coal-tar derivative.

If the irritant properties of this coloring material are so intense on the cutaneous surface, what must be its action—even very dilutely applied—on the delicate mucous membrane of the stomach? Do physicians know how many times this may be a factor in their cases of gastritis?

New and Non-Official Remedies

THE FOLLOWING ARTICLES HAVE BEEN TENTATIVELY ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR INCLUSION IN THE PROPOSED ANNUAL, "NEW AND NON-OFFICIAL REMEDIES." THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT, BUT TO SOME EXTENT ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE FINAL ACCEPTANCE AND PUBLICATION IN BOOK FORM.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

(*Continued from page 1919.*)

TANNALBIN.

TANNATE OF ALBUMIN. ALBUMINIS TANNAS.

Tannalbin is a compound of tannic acid and albumin thoroughly exsiccated.

It is prepared by precipitating 10 parts of a 10 per cent. solution of egg albumin with 6.5 parts of a 10 per cent. solution of tannic acid, washing the precipitate with water until the washings react only faintly with ferric chloride, drying it on porous tiles, powdering, and heating the product at 126° C. (258.8° F.) for six hours.

It is a light brown, odorless and tasteless powder, containing about 50 per cent. of tannic acid. It is practically insoluble in water or alcohol, but slowly soluble in alkaline fluids, which split it up into its constituents.

The filtrate obtained after shaking tannalbin with water should give at most a faint reaction with ferric chloride.

It is incompatible with alkaline liquids.

Actions and Uses.—Tannalbin is astringent. Being insoluble in the gastric juice, it becomes effective when it reaches the intestines, where it slowly splits off tannic acid. It does not produce gastric disturbance.

It is recommended in diarrhea, especially in that of children, and in phthisis.

Dosage.—1 to 4 Gm. (15 to 60 grains) in powder (or tablets) followed by water; infant doses, 0.3 to 0.5 Gm. (5 to 8 grs.) in gruel or other mucilaginous liquid.

Manufactured by Knoll & Co., Ludwigshafen a. R. and New York. U. S. patent No. 563,479. U. S. trademark No. 28,348.

TANNOFORM.

TANNINFORMALDEHYDE. METHYLENDITANNIN.

Tannoform, $CH_2(C_{14}H_9O_9)_2 = C_{29}H_{20}O_{18}$, is a condensation product of formaldehyde with gallo-tannic acid.

It is prepared by mixing solutions of formaldehyde and tannic acid, precipitating with concentrated hydrochloric acid, washing the precipitate with water, and drying.

It forms a voluminous, reddish powder, odorless and tasteless. It is insoluble in water, but soluble in alkaline liquids and in alcohol. 0.01 Gm. of tannoform dissolved in 2 Cc. concentrated sulphuric acid forms a brown solution which on warming becomes green and later changes to blue. The green or blue solution, on addition of alcohol, assumes a brilliant blue color, which gradually changes to wine color, while on addition of dilute sodium hydroxide the color is pale green.

Its incompatibilities are those of tannin generally.

Actions and Uses.—Tannoform is astringent and antiseptic. It is recommended on account of these properties in chronic intestinal catarrh and externally in hyperidrosis, bromidrosis, weeping eczema, ozena, etc.

Dosage.—0.25 to 0.5 Gm. (4 to 8 grains); externally, pure or in 25 to 50 per cent. triturations (with talc) as dusting powder, or as 10 per cent. ointment or soap.

Manufactured by E. Merck, Darmstadt (Merck & Co., New York). German patent Nos. 88,082 and 88,841.

TANNOPIN.

TANNON. HEXAMETHYLENE-TETRAMINE-TANNIN.

Tannopin, $(C_{14}H_{10}O_9)_3.(CH_2)_6N_4 = C_{48}H_{42}O_{27}N_4$, is a condensation product of tannin with hexamethylenamine.

It is prepared by mixing molecular proportions of solutions of hexamethylenamine and tannic acid, collecting, washing and drying the precipitate.

It is a fine, fawn-colored, odorless and tasteless, non-hygroscopic powder, containing 87 per cent. of tannin and 13 per cent. of hexamethylenamine. It is insoluble in water, weak acids, alcohol, chloroform, or ether, but slowly soluble in dilute alkalies. On heating dry tannopin, it swells and gives off the odor of formaldehyde. The odor of formaldehyde is also developed on heating tannopin with dilute sulphuric or hydrochloric acid, while on boiling with sodium hydroxide solution it splits off ammonia. The clear aqueous filtrate from tannopin does not give a reaction with ferric chloride.

It is incompatible with alkalies.

Actions and Uses.—Tannopin is an intestinal astringent and antiseptic; it passes unchanged through the stomach, but, being gradually decomposed by alkalies, it becomes effective in the intestinal tract, exerting the action of its two components.

It is recommended in acute, subacute or chronic intestinal catarrh, in tuberculous enteritis, and other intestinal disorders.

Dosage.—0.3 to 0.5 Gm. (5 to 8 grains) for infants and children; 1 Gm. (15 grains) for adults, dry on the tongue, followed by a swallow of water, or sprinkled on food, four times a day.

Manufactured by Farbenfabriken, vorm. Friedr. Bayer & Co., Elberfeld, Germany (Continental Color & Chemical Co., New York). U. S. patent No. 607,172. U. S. trademark No. 31,527.

THEOBROMINE.

1,7-DIMETHYL-XANTHINE.

Theobromine, $N(CH_3).CH:C.N(CH_3)\diagdown$ / $CO=$ / $CO\text{———}NH.C = N\diagup$

$C_7H_8O_2N_4$, is a base occurring in *Theobroma cacao, Kola acuminata,* etc., and also made synthetically.

It is a white, crystalline powder, odorless and bitterish. It is almost insoluble in cold water or chloroform, readily soluble in hot alcohol and in ether. It forms salts with acids.

Actions and Uses.—Its uses are similar to caffeine, but it has relatively greater diuretic, cardiac and muscular activity. It does not act so powerfully on the central nervous system.

It is recommended as a diuretic. The great obstacle to its use has been its insolubility and the consequent uncertainty of the degree of its absorption. It is liable to produce gastric disturbances.

Dosage.—0.35 to 0.5 Gm. (5 to 8 grains).

THEOBROMINE SODIUM SALICYLATE.

THEOBROMINUM NATRIO-SALICYLICUM PH. G. IV. THEOBROMINÆ SODIO-SALICYLAS.

Theobrominesodium salicylate, $NaC_7H_7N_4O_2 + NaC_7H_5O_3$, is a double salt of theobromine-sodium and sodium salicylate.

It is prepared by adding to a solution of one molecule of sodium hydroxide one molecule of theobromine. To this solution of sodium theobromine one molecule of sodium salicylate is added and the solution brought to dryness.

It is a white powder, odorless, having a saline taste, and containing 50 per cent. of theobromine. It is freely soluble in water, and, like "theobromine sodium-acetate" (see Agurin) is readily decomposed by exposure to carbon dioxide or by the action of acids. It must therefore be preserved in well stoppered bottles.

The aqueous solution (1 to 5) is colorless, turns litmus paper blue and after acidification with acetic acid assumes a violet coloration on addition of ferric chloride solution. From the solution, hydrochloric acid precipitates salicylic acid and, after a time, also theobromine, the precipitate being completely soluble in sodium hydroxide solution, but not in ammonia water. If 10 Cc. of the solution, rendered clear by the addition of sodium hydroxide solution, is shaken with 10 Cc. of chloroform, the chloroform when separated and evaporated should leave a residue not exceeding 0.005 Gm. for 1 Gm. theobromine sodium salicylate.

It is incompatible with acids, bicarbonates, borates, phosphates, ferric salts, chloral, etc.

Actions and Uses.—Its effects are the same as those of theobromine (which see), over which it has the advantage of greater solubility.

Dosage.—1 Gm. (15 grains) five or six times a day. Its tendency to produce gastric irritation may be prevented by giving it in well-diluted solution, or, if preferred, in capsules or wafers, followed by water.

(*To be continued.*)

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[For other information see second page following reading matter.]

SATURDAY, DECEMBER 15, 1906.

IS APPENDICITIS ON THE INCREASE?

When a given disease is brought into prominent notice, it is often difficult to state whether there is an actual or only an apparent increase in its incidence. In order to ascertain the truth on this point, it is necessary to learn whether the same disease has appeared in the mortality sheets under other names and if a greater knowledge of the disease may not have led to its more frequent recognition. So far as appendicitis is concerned, there has been for years discussion as to whether or not the disease is on the increase. Some observers, such as Lucas-Championnière, have gone so far as to say that it is practically a new disease, but others, as Villaret, for example, strenuously oppose the idea that the condition is any more common than it used to be.

There is no doubt that the older clinicians failed to recognize the appendix as the commonest cause of acute abdominal disease, especially localized conditions in the right iliac fossa. It is true that they observed what we now know to be the terminal stages of appendicitis, and they labeled these conditions perityphlitis, iliac phlegmon, typhloenteritis, and so on. Very commonly the patient died, and his case was entered on the mortality reports as one of peritonitis or of inflammation of the bowels. What the older writers failed to see was that the trouble underlying all these ills originated in the appendix. All this, however, does not prove that the condition, which we now know as appendicitis, was any less common fifty years ago than at present. There is no doubt that the terminal stages of the disease have been recognized under other names for several generations, and it is distinctly stated by some writers that they were common. Addison,[1] in 1842, in discussing a case of abscess in the right iliac fossa, states that he believes similar cases are of frequent occurrence. George Lewis,[2] in 1856, refers to numerous cases told him by neighboring physicians, and Leudet,[3] of Rouen, in 1859, specifically states that the appendix is a very frequent cause of localized peritonitis. It seems to have been generally overlooked, too, that in 1855 James Jackson[4] described the so-called McBurney's point, though he did not recognize its significance in appendiceal inflammation.

It is difficult to find statistics bearing directly on the supposed increase in appendicitis. There are some figures, however, which strongly suggest that the increase is only a supposed one. Villaret's figures on the incidence of the disease in the German army show that between 1874 and 1901 the proportion of cases of appendicitis had increased 70 per cent., but they also show that during the same period the mortality from peritonitis had decreased 70.2 per cent., that from diseases of the liver 60.4 per cent., and that from chronic affections of the stomach 79.9 per cent. The statistics from several large St. Petersburg hospitals show that since 1890 the average death rate from appendicitis has been 0.37 per cent., and that there has been no increase during that time. The mortality statistics of the State of Connecticut show a suggestive relation between appendicitis and peritonitis. In 1894 appendicitis was not recorded as a cause of death in the Connecticut tables, and there were 153 deaths from non-puerperal peritonitis; the next year there were 31 deaths from appendicitis and only 129 from peritonitis, the two together causing 160 deaths. From 1895 to 1904 the records of this state show a gradually increasing death rate from appendicitis, and a correspondingly decreasing one from peritonitis, so that, while in 1895 there were 31 deaths from appendicitis and 129 from peritonitis, in 1904 there were 85 deaths from appendicitis and 83 from peritonitis.

From the above statements it is evident that, while appendicitis as such is of recent recognition, its effects, and particularly peritonitis and abscess of the iliac region, have figured in the mortality returns for years. This, together with the distinct relation between peritonitis and appendicitis in the mortality statistics, make it certain that, probably to a large extent, the increase in the incidence of appendicitis is only apparent. Furthermore, when we come to inquire into the question of the recognition of the disease, we find, without doubt, that it is now recognized at an early stage where fifteen years ago it was hardly recognized at all. This widespread early recognition is due, no doubt, chiefly to the advances in abdominal surgery which have allowed us to gain a full understanding of the disease in its various stages. We are forced to believe that the mortality from peritonitis which now appears in the statistics is still largely due to appendicitis, and we are of the opinion that, even now, many general practitioners fail to recognize the fact that most inflammations in the right iliac fossa are due to appendicitis, and allow a patient's condition to go undiagnosed until too late. While we do not believe that appendicitis has increased in frequency, we do believe that there is still room for improvement in its early diagnosis.

1. Dunn: Lancet, 1842, I, 483, discussion.
2. New York Jour. of Med., vol. I, 1856, third series.
3. Arch. Gén. de Méd., 1859, II, 129.
4. "Letters to a Young Physician."

INTERNATIONAL SANITATION.

The Sanitary Convention, signed at Washington, D. C., Oct. 14, 1905, marked an era in this work in the Western Hemisphere. This agreement, which codified the measures necessary to guard against the invasion

and propagation of yellow fever, cholera and plague from one country to another, emphasizes the responsibilities of the different governments to each other in matters relating to the public health. Such measures will remain a necessity until the nations harboring infectious diseases institute engineering and sanitary measures for their elimination.

The duty devolving on all nations to eradicate disease from their territory formed the subject of a resolution which was passed by the American Medical Association at its annual session in 1889.[1] Since that time this principle has been repeatedly advocated.

In 1876 Woodworth[2] suggested the awakening of an international sentiment for the prevention of cholera and yellow fever; since 1896 Surgeon-General Wyman[3] has urged international action for the elimination of yellow fever from its endemic centers, and Kitasato[4] has recently advocated the organization of an international army to combat and vanquish plague. The arguments in each case are the relief of commerce and the saving of human life.

The advance in international understanding leads to the hope that before long an international compact will be formed looking to the eradication of transmissible disease from infected localities. This means the enforcement of sanitary and hygienic measures, particularly in seaport towns which, under present conditions, are a constant menace to the health of other countries.

A specific suggestion was made at the Conference of the American States in Mexico in 1901, looking to an international agreement for the elimination of yellow fever. Since that time much evidence has accumulated to show that with well-directed efforts such a consummation is possible. Two threatening epidemics have been suppressed, one at Laredo, Texas, and one at New Orleans; and the efficient sanitary work on the Isthmus of Panama is convincing that life in an endemic focus of yellow fever may be rendered safe. This suggestion served the purpose of pointing to a standard to which effort should be made, and had an influence in the adoption of the resolution under which international sanitary conventions are now held.

In this issue of THE JOURNAL[5] appear the recommendations recently adopted at the Third International Conference of American States held in Rio de Janeiro. They suggested the adoption of measures tending to secure improved sanitation of cities, and place on the next International Sanitary Convention, to be held in Mexico, December, 1907, the duty of devising some plan or agreement looking to that end. An international agreement to this effect would be of the greatest importance to commerce and the public health, and would ultimately relieve, in great measure, the necessity of quarantine.

The method of transmission and prevention of infectious diseases (particularly yellow fever, malaria and tuberculosis) are now so well understood that there should be little difficulty in arriving at some general understanding for a comprehensive working plan. Such a plan should take cognizance of the fact that epidemics requiring national intervention have their origin in insanitary local conditions, and the argument naturally follows that the national governments of the several republics must in some manner exercise a more direct influence for the correction of these faulty local conditions.

1. THE JOURNAL A. M. A., July 20, 1889.
2. Annual Report, U. S. Marine-Hospital Service, 1876.
3. Annual Report, U. S. Marine-Hospital Service, 1897.
4. Philippine Jour. of Sci., June, 1906.
5. See page 2025.

THE FIRST FRENCH PUBLICIST—A BIT OF MEDICAL HISTORY.

The first newspaper in France appeared in Paris in 1631. Unlike similar enterprises begun a little earlier in Germany and England by stationers in the ordinary course of their trade, this newspaper was but one of the many busy schemes of an energetic member of the medical profession, Théophraste Renaudot, of whose activities both within and beyond the limits of his chosen calling much of interest might be written.

Théophraste Renaudot was born at Loudun in 1584 and studied medicine in Paris and Montpellier. In 1612 he established himself in Paris, where he had reason to hope his acquaintance with Cardinal Richelieu would stand him in good stead. In this he was not mistaken. Having turned Catholic, he became physician to the king (Louis XIII) and was able to conquer all the difficulties put in his way by the Paris faculty, which would allow no other physicians to practice in Paris except those promoted by itself. But Renaudot was not satisfied with mere practice. He established an agency or office, "Bureau d'Adresses et de Rencontre," where could be learned the addresses of persons; to this he soon added an employment agency and a chemical laboratory where he gave instruction as well as manufactured certain preparations of antimony, introduced by Paracelsus, with the therapeutic action of which he had become familiar in Montpellier. The use of these preparations, however, was prohibited by the Paris faculty of medicine. To us of the present day, enterprises like these naturally suggest at once the great advantage of publicity and advertisement.

Whatever the motive or source of the suggestion—some say the project was formed by Richelieu himself—Renaudot, in 1631, began the annals of French journalism by issuing the *Gazette*, the continuation of which is said to be the present *Gazette de France*. Richelieu and the king took keen interest in the progress of the infant *Gazette* and letters-patent were issued to Renaudot and his heirs, giving the exclusive right to print and to sell where and how they may please "the gazettes, news, and narratives of all that has passed or may pass within or

without the kingdom." We can not now describe all the details of Renaudot's *Gazette*. It is necessary, however, to direct attention to the last page, which was occupied regularly by lavish advertisements of the many and excellent remedies that could be obtained at the bureau in Rue de la Calandre under the sign of the "coq d'or"; especially antimony was praised in extravagant terms. The faculty attempted in vain to suppress the paper. As the business increased, Renaudot, apparently on pure philanthropic grounds, commenced, each Saturday, to distribute his antimony preparations free of charge to the poor. Out of this custom grew a large policlinic, and one of the earliest. At first the dispensary was open only on Saturday, but later every week day, and the patronage grew to such an extent that Renaudot was forced to bring assistants from Montpellier. Finally the staff numbered no less than 15 physicians, all from Montpellier.

Renaudot was now at the height of his power; he was appointed general supervisor of the care of the sick poor in Paris and introduced many needed reforms. After Richelieu's death in 1642 Renaudot's influence gradually waned and the faculty succeeded, in spite of opposition from Montpellier, in securing the cancellation of his right to practice. The *Gazette*, however, flourished, and at his death in 1653 it was left to his sons in prosperous condition. Thirteen years later the Paris faculty found itself impelled to decree the free use of antimony.

Renaudot's purely medical writings are not many; the most important deal with questions concerning the care for the sick poor. The father of French journalism impresses one as a man of intense and diversified activity and of great energy. Considering the spirit of his times and the relentless opposition to him by the faculty of medicine in Paris, he accomplished much of importance in practical medicine. His was one of the first true policlinics, the example of which can not have been without subsequent influence, and his efforts on behalf of the sick poor were also beneficial.

THE NOBEL PRIZE IN MEDICINE.

As announced last week, the Nobel prize in medicine for the present year has been divided between Professor Camillo Golgi of Italy and Professor Santiago Ramon y Cajal of the University of Madrid. The prize amounts to over $40,000, so that, even when divided between two men, it makes a magnificent recompense for their labors.

While the names of the recipients are not familiar to the great mass of the profession, there can be no doubt that the selection for the distinction conferred is eminently fitting. Golgi's important work consisted in the invention of the staining method which has since been known by his name and by which the brain tissues, after hardening in bichromate of potash or corrosive sublimate, are stained by nitrate of silver. This method has given most beautiful results and has imparted information with regard to the central nervous system which had been unattainable before. The nerve cell in the brain tissues acquired an importance much greater than ever, and the first hint of a proper conception of the composition of nerve tissues was made possible.

Ramon y Cajal's work consisted in the development of Golgi's methods and their application especially to embryonic nerve tissue. He succeeded in demonstrating that anatomically nerve cells are independent of one another, and that even the axis cylinder does not become continuous with any other portion of nerve tissue, but only enters into communication with them by contact of the minute terminal filaments. After Ramon y Cajal's discoveries the neuron theory became a portion of the most discussed teaching in neurologic science. It was the Spanish anatomist himself who suggested that possibly the neuroglia cells in the brain act as insulators, preventing the passage of nerve impulses from one cell to another, except when by voluntary action their processes are withdrawn from the positions which they occupy between nerve cell endings. He also suggested that, as the neuroglia cells have minute terminal filaments ending in the blood vessel walls, it seems not unlikely that the contraction of these cells widens such blood vessels and so allows a larger amount of blood to reach a given part of the brain than before, thus heightening brain activity and explaining the mental process we call attention.

Needless to say, these theories have been very much discussed, but it is for his observations in brain anatomy that Ramon y Cajal has gained his reputation as a scientific worker and for which he has now received the merited reward of $20,000 from the annual Nobel prize fund.

CLIMATE IN THE TREATMENT OF TUBERCULOSIS.

The importance of correct appreciation of the problems involved in the advice given patients concerning change of climate for tuberculosis is forcibly set forth by M. A. Rogers,[1] a physician with eleven years' experience in the desert (Arizona) in the treatment of large numbers of tuberculous patients. He objects to the current statement that climatic treatment is not a necessary, and hardly an important, factor in the cure of tuberculosis, and he regards a stay in an arid climate as of especial importance for those convalescing from acute diseases at which time they are exceptionally liable to contract tuberculosis. Students who have had an attack of pneumonia, pleurisy or measles can pursue their studies in the University of Arizona when they might succumb to tuberculosis if they remained at home. Nursing women and debilitated persons generally will benefit greatly by such a change. The climate of Arizona is especially favorable, he states, to the growth and

1. Charities and the Commons, Sept. 1, 1906.

development of children, infant mortality among those of American parentage being almost *nil*. In reference to the treatment of tuberculosis the statement is made that only patients in the incipient stage recover, although patients in advanced stages may prolong life beyond what would be possible in more unfavorable localities. The consumptive in an arid climate needs medical care, rest and nursing as much or more than at home. Treatment in a sanatorium is most favorable, and Rogers emphasizes the importance of the immigrant at least being supplied with money enough to make himself comfortable without work. The proper time to send patients should be considered. To send them to Gallup, in New Mexico, at an altitude of over 6,000 feet above the sea, in the dead of winter, when there is probably a foot or two of snow on the ground and the temperature 10 degrees below zero, and to tell them to live out of doors, is to invite a fatal termination. What kills them a little quicker, according to Rogers, is to send them to Tucson or Phoenix in June, when the thermometer is registering 110 or 115, or even higher, in the shade, with instructions to "get a tent and go out in the desert and rough it." He states that the three great advantages of the arid climate are: 1. The dry, invigorating, sterile quality, which acts as a tonic. 2. The fact that the open-air treatment can be carried on without interruption during the entire winter and with comfort to the patient. 3. The almost continuous bright sunshine, which, besides being curative, is conducive to cheerfulness and hopefulness. All forms of tuberculous throat affections, Rogers states, are unsuitable for climatic treatment. He makes a plea for the establishment of a large sanatorium with ample endowment to care for the unfortunate patients who go to Arizona with insufficient means to care for themselves properly.

ANOTHER CARDIAC PERIL.

Many years ago a Russian physiologist humorously advised the use of the sphygmograph by lovers and others who wish to know the real feelings of those in whom they are specially interested. In view of the reported great increase of heart disease which is coming to the front, like cancer and pnuemonia, there may be other prudential reasons for the use of this diagnostic instrument in such cases. A young man in Brooklyn is said to have died on account of the shock due to acceptance by his sweetheart—at least, it is alleged that this was the verdict of the physician. He evidently did not expect it, and it was too much for him. As a lay contemporary says, this incident should be a forceful reminder to young women not to accept too promptly. It should also be a reminder to young men to be sure of the physical condition of their hearts before figuratively giving or offering them to others. It is perhaps the infallible female instinct or intuition which has led to the almost proverbial allegation that a woman's "No" means "Yes." They instinctively dally and hold back on such important occasions, for, as our contemporary says, what is the use of accepting a man and having him die on the spot?

BUSINESS BEFORE HEALTH.

After ten years' experience with what has been known as a practically model milk service, the milk dealers of Rochester, N. Y., have made an effort to take the control out of the hands of the very competent health officer and to put the power to revoke licenses into the hands of another official. The paid attorney of the milk producers, in his argument before the law committee of the city council, alleged, according to the newspaper reports, that the health officer was neglecting the business side of the question and going too much on theory. It was not right, he said, to raise the price of milk for a city of 200,000 people for the sake of 7,500 babies. This is the old conflict of individual or class business interests against the general public welfare cropping out in another place. It would seem strange that, after ten years of creditable obedience to necessary health regulations, the milk dealers of Rochester should at last break out in an attempt to nullify the whole system and thus imperil, if not absolutely destroy, the good reputation they have been so long in earning. The last straw, however (that seems to have broken the camel's back, if the simile is worth using in this case) was a proposed amendment to the ordinances, suggested by the health officer, that all milk sold should be delivered at a temperature of not more than 50 degrees Fahrenheit. This has been pending before the law committee of the council since the early part of last summer, and its reasonableness every physician will admit. We have not learned that the milk dealers of Rochester have carried their point, and it will be a pity if that city takes any such retrograde step. It seems specially unfortunate and ill advised that the attempt should be made to annul all the good accomplished in ten years just when reform is everywhere in the air and the old rule of "business before anything else," and especially before considerations of health, is being generally questioned in this country.

VIVISECTION.

The opponents of vivisection have usually ignored the benefits derived from the practice and have presented the absurd view that the vivisector is a heartless torturer of dumb animals. The prejudice against vivisection is strongest in Great Britain, and it is there that the antivivisectionists keep themselves most prominently in the public eye. In order to satisfy the clamorings of this body, the present British Government has appointed another Royal Commission on Vivisection. The commission has been selected with fairness; although, indeed, the antipathies of the antivivisectionists have been even unduly considered, for out of the ten commissioners four are on their side and two not in a position to criticise them. Two of the members are medical men of some note and at the same time antivivisectionists. The conclusions of this commission will be awaited with interest by the medical profession of Great Britain, the great majority of whom are probably in favor of experiments on animals. If the report be adverse to vivisection, strictly regulated as it now is in Great Britain, the cause of medical science in that country will receive a decided set-back.

Medical News

ILLINOIS.

Personal.—Dr. Joseph H. Firestone is reported to be critically ill with typhoid fever at his home in Freeport.——Dr. Frank M. Hagans, Lincoln, on December 10 was appointed physician of Logan County.——Dr. John W. Tope has been chosen to organize the medical staff of the Oak Park Hospital, which will be open about the first of February.

State Military Surgeons Meet.—The Association of the Military Surgeons of the State of Illinois held its semi-annual meeting in Chicago, December 13. At the morning session Dr. Billings' clinic at Rush Medical College was attended, followed by a business meeting and the reading of papers. Luncheon was served at the Presbyterian Hospital and demonstrations were made on the cadaver by Col. Nicholas Senn and others, and in the evening the association was entertained by Dr. Senn at dinner at De Jonghe's.

Warns Against Itinerant Vendors.—The State Board of Health is circulating a warning to the public against "the so-called 'traveling specialists' who come from time to time into the various communities, their visits heralded by bold display advertisements in the newspapers, or by showy handbills." The warning continues:

As a rule, the greatness and eminence of these itinerants is confined closely to their own statements—in their own communities they are not looked on as distinguished specialists, but as men of mediocre ability who find traveling and advertising more lucrative than the quiet, dignified practice of their profession.

The State Board of Health would especially warn the people to avoid any relationship with those itinerant physicians who say that written agreements be entered into regarding the treatment of cases; who insist on the signing of notes, or who guarantee to cure in consideration of contingent fees. In dealing with patients who are honest and straightforward, it is seldom found necessary by the regular physician to bind them with contracts, notes and agreements. Further, the innocent looking "agreement," which the traveling specialist asks the patient to sign, frequently turns out to be a promissory note, pure and simple, which is promptly transferred to a third person, and which must be paid, regardless of the effects of the treatment, or whether any treatment has been given or not. . . .

Unless the "specialist" is personally known to the patient as a man of honesty and ability it is foolhardy to enter into any agreement or business arrangement with him, and under no circumstances should an agreement or contract with an itinerant be signed except in the presence of a competent attorney.

Chicago.

Personal.—Dr. William L. Baum has been elected commodore of the Chicago Yacht Club.——Dr. A. E. Halstead has been elected professor of surgery in the Northwestern University Medical School.

Ambulance Service.—Dr. Charles J. Whalen, commissioner of health, announces that the ambulance service in the police department has been officially turned over to the health department and will be manned by physicians and that this makes a good opening for young physicians who wish experience in emergency work.

Contagious Diseases.—The department of health reports a marked improvement in the contagious disease indications. Although there was an increase in the total specimens submitted for examination in the department laboratory there were fewer positive findings of typhoid fever, diphtheria, and influenza and a corresponding decrease in the number of cases of these diseases reported during the week.

INDIANA.

Personal.—Dr. Gustave A. Petersdorf, Indianapolis, newly elected coroner of Marion County, has announced the appointment of Drs. Edwin S. Knox and Ray V. Converse as his deputies.——Dr. William D. Milroy is reported to be critically ill at his home in Logansport.——Dr. Mary Wickens, the first woman interne at the Indianapolis City Hospital, began her service December 1.——Dr. Irvin J. Becknell, Goshen, has been reappointed secretary of the Elkhart County board of health.——Dr. Eugene Holdeman, Elkhart, has been reappointed physician of the Elkhart County Infirmary.——Dr. J. B. Rucker has taken charge of the State Laboratory of Hygiene, Indianapolis, vice Dr. T. Victor Keene, resigned.——The staff of the Fort Wayne Lutheran Hospital has elected officers as follows: Chief of staff, Dr. Herman A. Duemling; president, Dr. Henry G. Merz, and secretary, Dr. Eric A. Crull.——Dr. John F. Simison, Romney, has been elected to the legislature from the counties of Montgomery and Tippecanoe.——Dr. George H. Grant, Richmond, health officer of Wayne County, has resigned on account of ill health.——Dr. Charles Marvel, Richmond, has been appointed secretary of the Wayne County board of health and Dr. John M. Fouts, Centerville, has been reëlected physician to the county infirmary.

MARYLAND.

Care of the Insane.—According to Dr. George J. Preston, secretary of the lunacy commission, the needs of the state in this regard are as follows:

State supervision of dependent insane, with ample accommodations for their treatment.
A state insane asylum for colored patients exclusively.
A psychopathic ward in one of the city hospitals for temporarily insane patients, to be established as a phychopathic hospital as the need grows.
Separation of acute from chronic cases.
A hospital for epileptics.
Provision for adults in the School for Feeble-Minded Children who cannot now be sent to the over-crowded institutions.

Baltimore.

Suicides.—During this year thus far 72 suicides have been reported in Baltimore. Of these 68 were whites—56 female and 12 male; 2 colored males and 2 Chinamen.

Pneumonia and Tuberculosis.—During the week ended December 8 there were 23 deaths from pneumonia and 34 from tuberculosis.

Proportion of Instructors to Students.—The register of the Johns Hopkins University shows the attendance in the present session to be 623, 264 of whom are in the medical department. The faculty numbers 190.

Prosecution of Illegal Practitioners.—Dr. Herbert Harlan, chairman of the committee appointed to investigate and report for prosecution unregistered physicians of the city, announces that of the 13 physicians whom he had reported to the state's attorney, 11 had been indicted by the grand jury and the other two had removed from the city.

Hospital to Build.—The Sydenham Infectious Diseases Hospital Commission met December 6 to consider bids for the buildings. The bids exceeded $30,000, and as only $25,000 was available, the commission decided to build at present only the detention ward to accommodate 30 patients, and which will cost about $30,000, leaving the other matters for the future.

Medical Society.—At the annual meeting of the Baltimore City Medical Society, December 4, Dr. Archibald C. Harrison was elected president; Dr. J. Mason Hundley, vice-president; Dr. W. Edward Magruder, secretary, and Dr. William S. Gardner, treasurer. Dr. Richard C. Cabot of Boston made an address on "Suggestions for Hospital Reorganization, with Special Reference to Greater Effectiveness of Treatment Therein."

Source of Typhoid.—The water engineer of Baltimore has made an exhaustive investigation as to the source of the typhoid fever recently prevalent and declares that the city water supply is not to blame, that it is free from typhoid germs and that it would be a reckless waste of money to build a filtration plant as is being done in other cities. He attributes the cause of the infection to contaminated wells, bathing in polluted streams, infected flies, the use of night soil as fertilizer on truck farms, polluted milk and ice from polluted ponds.

Personal.—Dr. R. Dorsey Coale, dean of the Medical Faculty of the University of Maryland, has been elected to fill the vacancy in the Sydenham Infectious Diseases Hospital Commission occasioned by the death of Dr. Isaac E. Atkinson.——Dr. Thomas B. Futcher has been appointed attending physician to the Woman's Hospital, vice Dr. Isaac E. Atkinson, deceased.——Dr. William Osler arrived in Baltimore December 8, and remained as the guest of Dr. H. W. Cushing until December 12, when he left for Canada. He expects to spend several weeks in Baltimore after the Christmas holidays.

MICHIGAN.

Personal.—Dr. George E. Chamberlin, Grand Rapids, has been appointed medical director for the State Home for the Feeble Minded and Epileptics, Lapeer, to succeed Dr. William J. Polglase, who retires January 1.——Dr. Simeon S. French, aged 90, the oldest practitioner of Battle Creek, was the guest of honor at a banquet given by the Calhoun County Medical Society, December 4.——Dr. and Mrs. Alexander G. MacLeod, Calumet, returned November 25 from an extended trip to Europe.——Dr. Ernest L. Shurly, Detroit, has started for Europe.——Dr. Millie Wilson, Detroit, has succeeded Dr. Nina Oliver McIntyre as assistant physician at the State Home for the Feeble Minded and Epileptics, Lapeer.

NEW YORK.

Suffern Residents Protest.—Persons living in the neighborhood of the Good Samaritan Hospital, Suffern, have sent in a petition making a vigorous protest against the erection of an annex to the hospital, which is to be used as a laundry and which was presented to the hospital by Mrs. Thomas F. Ryan of New York.

New York City.

Bequest to Hospital.—By the will of the late Mrs. Catherine Goldbach, $3,800 has been bequeathed to St. Catherine's Hospital, Brooklyn.

Smallpox in Brooklyn.—Twelve cases of smallpox were found in the negro tenements at Cleveland Place and Baltic Street by the Brooklyn Health Department. They were all in one block and the block was put under police quarantine.

Right of Way for Ambulances.—At the meeting of the board of aldermen December 4, an ordinance was adopted providing that any vehicle bearing a wounded or sick person shall have the right of way over all other vehicles except those which carry the United States mail.

Emmet's Successor.—The vacancy in the medical board of the Woman's Hospital in the State of New York occasioned by the resignation several years ago of Dr. Thomas Addis Emmet, was filled December 10 by the election of Dr. J. Riddle Goffe as visiting surgeon.

Harvey Society Lecture.—The fifth lecture in the Harvey Society course, given by Dr. S. J. Meltzer, New York City, December 15, at 8:30 p. m., at the New York Academy of Medicine, is on "The Factors of Safety in Animal Structure and Animal Economy." All interested are cordially invited to be present.

New York Academy of Medicine.—The following officers were elected December 6: President, Dr. John A. Wyeth; vice-president, Dr. Algernon T. Bristow; trustee, Dr. Charles A. Dana; member committee on admissions, Dr. J. Ramsey Hunt; member committee on library, Dr. Henry S. Oppenheimer; recording secretary, Dr. John H. Huddleston, and corresponding secretary, Dr. Charles S. Bull.

Society Organized.—Physicians of the eastern district of the borough of Brooklyn organized a medical society to be known as the Williamsburgh Medical Society, December 5, with an initial membership of 48. The following officers were elected: President, Dr. Leon Louria; vice-president, Dr. William Linder; corresponding secretary, Dr. Marcus J. Levitt; financial secretary, Dr. Edward L. Friedman, and treasurer, Dr. Abraham Hayman.

New Woman's Hospital.—This institution which is located on 109th and 110th streets, between Amsterdam and Columbus avenues was formally opened December 5 in the presence of about 200 guests. Addresses were made by Bishop Potter, Gen. Horace Porter and Dr. D. B. St. John Roosa. The institution is said to be one of the most perfect in its appointments of any in the United States. The kitchen i on the top floor. The building is ventilated by a forced draught system. In the summer cold air is furnished and in the winter, warm air. There are 125 beds of which twenty-five will be devoted to charity patients. About $1,000,000 has been spent on the building and equipments.

OHIO.

Wrong Use of the Mails.—It is reported that a jury in the United States District Court found "Dr." J. E. Wenman, Lorain, guilty of mailing immoral and prohibited matter through the mails, fined him $100 and costs, and sentenced him to the workhouse for six months.

Communicable Diseases.—Smallpox is reported in McComb, where 15 families are under quarantine.——The mayor and the board of health have again closed the public schools of Batavia and prohibited public meetings, on account of the prevalence of diphtheria.——During the week ended December 1, 80 cases of diphtheria, with four deaths, were reported in Cleveland.——Three cases of cerebrospinal meningitis, with two deaths, are reported in Bellefontaine.

Medical Societies Formed.—The alumni association of the resident physicians and surgeons of St. Vincent's Charity Hospital, Cleveland, was organized at the annual reunion, November 21. Dr. William H. Humiston was chosen president, and Dr. Thomas A. Burke, secretary, both of Cleveland.——The Charity Hospital Medical Society, membership in which is limited to past and present resident physicians and surgeons of the St. Vincent's Charity Hospital, was organized in Cleveland, November 21. The following officers were elected: President, Dr. C. A. Hamann; vice-president, Dr. J. E. Cooke, and secretary-treasurer, Dr. William Schesinger.

Personal.—Dr. Seth E. Miller, Kipton, has been elected coroner of Lorain County.——Dr. Belle J. Allen, Bellefontaine, will soon leave for India as a medical missionary.——Dr. Heikki Koljonen, Ashtabula, has moved to Astoria, Ore.——Dr. Evans, Springfield, who has been ill with pneumonia, has recovered.——Dr. Thomas E. Shrider, Alvordton, has retired from active practice.——Dr. Edward G. Hersh, McComb, has been appointed health officer of Pleasant Township.——Dr. Charles F. Adams, Milledgeville, has succeeded Dr. George F. Brubaker, Springfield, as physician to the Odd Fellows' Home.

Cincinnati Hospital Staff.—The board of medical directors of the Cincinnati Hospital recently elected the following staff for the ensuing year: Department of medicine, senior staff, Drs. George A. Fackler, Joseph Eichberg, Edwin W. Mitchell, Oliver P. Holt; junior staff, Drs. John E. Greiwe and Mark A. Brown. Department of surgery, senior staff, Drs. N. P. Dandridge, Joseph Ransohoff, E. W. Walker, John C. Oliver; junior staff, Drs. Frank E. Fee, Arch I. Carson, Carl Hiller, H. H. Hines. Obstetric department, Drs. George M. Allen, W. D. Porter; junior staff, Dr. James W. Rowe. Gynecologic department, Drs. Sigmar Stark, Charles A. L. Reed, Charles L. Bonifield, John M. Withrow. Neurologic department, Drs. Frank W. Langdon, H. H. Hoppe. Pediatric department, Drs. B. Knox Rachford, Allyn C. Poole. Ophthalmologic department, Drs. Robert Sattler, Derrick T. Vail. Oto-Laryngologic department, Drs. Samuel E. Allen, John W. Murphy. Dermatologic department, Drs. A. Ravogli, Charles Seth Evans. Orthopedic department, Drs. Charles E. Caldwell, Albert H. Freiberg. Pathologic department, Drs. Henry W. Bettman, C. F. Hegner. Neuro-pathologist, Dr. David I. Wolfstein. Radiologist, Dr. Sidney Lange. Department of dentistry, Drs. W. D. Kempton, H. C. Matlack. Laboratory department, Drs. Horace J. Whitacre, F. W. Lamb, H. L. Woodward, L. G. Heyn, R. W. Thomas, Clifford Sater. Physician to the Branch Hospital, Dr. Albert Faller.

PENNSYLVANIA.

Hospital for Advanced Tuberculosis.—The Oil City board of health held a meeting with the city council to consider the building of a hospital for advanced cases of tuberculosis.

Sanatorium Rebuilt.—The Grand View Institution for the Care and Treatment of Tuberculosis, at Oil City, which was burned August 18, has been rebuilt, and the new building, with accommodations for 20 patients, is now ready for occupancy.

State Antitoxin.—The report of the State Department of Health from October 10 to November 10 shows that regarding 476 cases of diphtheria treated with the antitoxin distributed free, only 43 deaths resulted. This gives the very low death rate of 8 per cent. The report also shows that 418 children were immunized against the disease.

Typhoid at Greensburg.—Typhoid fever is epidemic in Greensburg, where 16 new cases have been reported in the last 10 days. Dr. Samuel G. Dixon will by request send a representative to make investigations of the condition. The water used by the residents has been analyzed and found to be pure and there are no surface indications of defects in the sewage system.

School Board Defies Dr. Dixon.—It is stated that the Altoona school board, at a meeting December 4, officially decided to ignore the rules regarding vaccination of school children laid down by Dr. Dixon, state commissioner, and to carry the fight into the courts if necessary. Dr. Dixon has ruled, as previously stated in THE JOURNAL, that if a child has been thrice vaccinated by the family physician without success, a fourth vaccination shall be made by a physician designated by the health authorities. The school directors voted to admit any child who had been vaccinated three times unsuccessfully by any reputable physician.

Societies Elect Officers.—At the November meeting of the Washington County Medical Society the following officers were elected for the ensuing year: President, Dr. William H. Alexander, Canonsburg; vice-president, Dr. William W. Weygrandt, Thomas; secretary and reporter, Dr. John B. Donaldson, Canonsburg; treasurer, Dr. Albert E. Thompson, Washington, and censors, Drs. William D. Teagarden and J. W. McKennan, Washington, and Dr. Joseph W. Hunter, Charleroi.——At the meeting of the Somerset County Medical Society the following officers were elected: President, Dr. E. Hunter Perry, Elk Lick; vice-president, Dr. Charles P. Large, Meyersdale; secretary, Dr. H. Clay McKinley, Meyersdale; treasurer, Dr. Walter S. Mountain, Confluence; financial secretary, Dr. Bruce Lichty, Meyersdale; district censors, Drs. Charles P. Large and H. Clay McKinley, Meyersdale, and censors, Drs. Maurice Stayer, Rockwood; Harry C. Hoffman, Meyersdale, and Albert M. Lichty, Elk Lick.——At the meeting of the Lawrence County Medical Society the following officers were elected: President, Dr. Jesse R. Cooper; vice-presidents, Drs. Charles A. Reed and Elizabeth M. McLaughry; secretary and reporter, Dr. Brant E. Sankey; treasurer, Dr. John Foster, and censors, Drs. John Foster, Walter L. Campbell and Robert G. Miles, all of New Castle.——At the meeting of the Franklin County Medical So-

ciety the following were nominated to the offices for the year 1907: President, Dr. John W. Croft, Waynesboro; vice-presidents, Drs. Guy P. Asper, Chambersburg, and James H. Swan, St. Thomas; secretary, Dr. John J. Coffman, Scotland; assistant secretary, Dr. H. Clay Devilbiss, Chambersburg; treasurer, Dr. David Maclay, Chambersburg, and censor, Dr. Henry X. Bonbrake, Chambersburg.

Philadelphia.

Dr. Hearn Injured.—Dr. Joseph W. Hearn, clinical professor of surgery in Jefferson Medical College, was thrown from his carriage in a runaway accident, December 4, and sustained a fracture of the base of the skull. Dr. Hearn was unconscious for twenty-four hours and his life was despaired of. On December 8 he showed marked signs of improvement and hopes for his recovery are now entertained.

Society Meeting.—The Northern Medical Association, the next to the oldest of the medical societies of Philadelphia, celebrated its sixtieth anniversary December 5, with a banquet at the Roosevelt. Dr. Joseph P. Remington presented the society with a portrait of his father, the first secretary of the organization. Among those present was Dr. William J. Mayo of Rochester, Minn. Dr. Albert Bernheim, chairman of the general committee of arrangements, presided, but later surrendered the chair to Dr. Thomas Shriner, who presided as toastmaster.

Personal.—Dr. Herbert Willis has returned from Europe.——Dr. William W. Trinkle, district police surgeon, has resigned.——Dr. W. M. Late Coplin, director of the department of health and charities, with Assistant Director Kearns, were guests of honor at a banquet given by the assistant medical inspectors of the health bureau, December 7.——Dr. S. Weir Mitchell was presented with a gold medal by the Society of St. Andrew at its one hundred and thirtieth anniversary celebration December 3.——Dr. Hobart A. Hare asks us to announce that the statements published in the Philadelphia papers, to the effect that he would spend the winter in Europe, are unfounded.

Filtered Water and Typhoid.—While the statement in THE JOURNAL of last week concerning the filtered water and typhoid fever question in this city was somewhat unfavorable to the water, the records of the bureau of health for the week ended December 7 show a marked decrease in typhoid fever in the filtered water area. In one district supplied with raw Schuylkill water there were 91 cases of typhoid out of a population of 293,210. In another section of the city supplied with raw Schuylkill water there were 37 cases in a population of 309,973. In still another section supplied with raw Schuylkill water there were 32 cases in a population of 282,057. In a district supplied with raw Delaware water there were 29 cases of typhoid fever in a population of 176,712. In the Belmont district, however, comprising West Philadelphia and supplied with filtered Schuylkill water, there were but 8 cases in a population of 173,839. In the original filtered water district, the Twenty-fourth Ward, there were no cases at all. In the first extension of this district there was one case reported and in the last extension 7 cases, making a total of 8 cases in all West Philadelphia. The typhoid record for the city during the week shows the presence of 203 new cases, an increase of 23 over the number reported in the preceding week.

TENNESSEE.

Hospital Enlarged.—Plans are being drawn for the construction of a new wing to St. Thomas Hospital, Nashville, and it is understood that the work will be begun in a very short time.

Smallpox.—Dr. Lafayette F. Seal, Tazewell, county health officer, reports 60 cases of smallpox in Claiborne County. The circuit court has been indefinitely postponed on account of the prevalence of the disease.

Appointment and Removal.—Dr. Claude C. Sullivan, Waverly, formerly secretary of the Humphreys County Medical Association, has been appointed assistant to the chair of physiology in the Tennessee University, Dental Department, and has moved to Nashville.

Middle Tennessee Association Meets.—The annual meeting of the Middle Tennessee Medical Association was held in Shelbyville, November 16 and 17, under the presidency of Dr. Lynn B. Graddy, Nashville. The association was welcomed to the city by the mayor and by Dr. Jabus S. Nowlin. The addresses of welcome were responded to by Dr. G. Chris. Savage, Nashville. The following officers were elected: Dr. W. Guy Freyerson, Shelbyville, president; Dr. Richard Douglas, Nashville, vice-president and Dr. William Litterer, Nashville (reelected) secretary. The next meeting of the association will be held in Murfreesboro in May, 1907.

TEXAS.

Fight Against Scarlet Fever.—Dr. James M. Loving, city physician of Austin, has issued a pamphlet instructing parents regarding the prevention of diphtheria and scarlet fever.

New Hospital.—All Saints' Hospital, Fort Worth, which has been built and equipped through the efforts of the members of the Trinity Mission in that city, is practically completed and will be ready for occupancy January 1. The building has accommodations for 35 patients and is strictly non-sectarian. Patients who are unable to pay are treated without charge.

Personal.—Dr. Matthew M. Smith, Austin, secretary of the Texas Sanatorium for Tuberculosis and a member of the Regular Board of Medical Examiners, has returned from a short trip to New York and Chicago.—Dr. George R. Tabor, state health officer, has returned after a trip to New Orleans and New York.——Dr. John R. Frazier, city health officer of Fort Worth has resigned, the resignation taking effect December 10.——Dr. J. E. Manney, Shauga, was stabbed by a negro on the streets of Marlin, November 17.—Dr. Robert L. Hall, Terrell, has been appointed health officer of Kaufman County, vice Dr. Lewis M. Stroud.——Dr. John W. Reifel, Houston, was been elected physician of Harris County, vice Dr. Edward J. Hamilton.——Dr. Eben S. Cox, Galveston, has been appointed health officer of Galveston County.——Dr. John M. Neel, Bonham, has been elected physician of Fannin County and Dr. John A. Lanius, jail physician.

VERMONT.

Medical College Opens.—The fifty-fourth annual session of the University of Vermont, Medical Department, Burlington, opened December 1, with an address by Dr. F. A. L. Lockhart, Montreal.

Diseased Meat Bill Defeated.—The joint resolution providing for an investigation by the legislature of the sale of diseased meats in the state of Vermont was voted down by a vote of 156 to 54.

Tuberculosis Sanatorium.—The sanatorium for the treatment of tuberculous patients, established by Senator Proctor, and toward which he contributed $100,000, is now under construction at Pittsfield and expects to be ready to receive patients next summer.

Personal.—The governor has appointed the following members to the State Board of Medical Registration: Drs. George F. Forbes, Burlington; A. E. Parlin, Barton Landing and Schuyler Hammond, Rutland.—Dr. Clinton F. Gale, Walcott, who has been practicing in that place for about a year, has been missing for three weeks and it is feared that some misfortune has befallen him.——Dr. Charles G. Abell has been appointed health officer of Enosburg Falls, vice Dr. Fred S. Hutchinson, resigned.

VIRGINIA.

Personal.—Dr. Herbert M. Nash, Norfolk, has been appointed surgeon general of the Grand Camp of the United Confederate Veterans of Virginia, vice Dr. James W. Claiborne, Petersburg, deceased.——Dr. John M. DeShazo, Centre Cross, has recovered from an attack of typhoid fever.——Dr. H. Rolfe Dupuy has been appointed health commissioner of Norfolk.

Asylum Changes.—Dr. Oliver C. Brunk has been appointed superintendent of the Eastern State Hospital, Williamsburg, vice Dr. Littleberry S. Foster. Dr. William F. Driver will succeed Dr. John M. Henderson as assistant physician and Dr. Irene B. Bullard, Radford, will succeed Dr. Philip T. Southall, as second assistant physician, all these changes to take effect January 1.

Cummunicable Diseases.—Norfolk reports 23 cases of scarlet fever.——Smallpox was reported in Alamance, Cherokee, Guilford, Mecklinburg and Randolph counties, with a total of 17 cases.——Diphtheria is reported in 17 counties; typhoid fever in 66 counties; malarial fever in 9 counties and hemorrhagic fever in 7 counties.——Two cases of smallpox were discovered by the local board of health in Richmond, November 20.

WISCONSIN.

Back to Wisconsin.—Dr. F. Gregory Connell, formerly of Milwaukee, who for the last four or five years has been practicing in Leadville, Colo., has located in Oshkosh and is associated with Dr. C. W. Oviatt.

Smallpox.—Several cases of smallpox are reported in and around Hortonville.——On account of the prevalence of smallpox at Two Rivers the workmen of Manitowoc, who are employed in the factories of Two Rivers, are ordered to be vaccinated under penalty of strict quarantine.——Eight cases of

smallpox have been discovered in one ward in Beaver Dam and the schools and churches in that ward have been closed.

GENERAL.

Tri-State Meeting.—The annual meeting of the Tri-State Medical Association of Mississippi, Arkansas and Tennessee was held in Memphis November 20-22, under the presidency of Dr. Allen E. Cox, Helena, Ark. The president's address was on the subject of "The 'Patent Medicine' Evil; the Rôle of the Physician and the Crusade being Waged against it." The following officers were elected: President, Dr. Frank J. Runyon, Clarksville, Tenn.; vice-presidents, for Mississippi, Dr. John Barskdale, Vaiden; for Arkansas, Dr. Louis F. Heintz, Marion, and for Tennessee, Dr. James B. Witherington, Munford; secretary, Dr. Richmond McKinney, Memphis (re-elected) and treasurer, Dr. Marcus Haase, Memphis (re-elected).

FOREIGN.

"Patent Medicines" to be Unprotected in Switzerland.—According to the *Deutsche med. Wochschr.*, the authorities in Switzerland have voted to exclude "patent medicines" completely from the protection of the patent laws.

Regulations Against Quacks in Austria.—The Austrian minister of the interior has empowered the police to arrest and fine unqualified persons treating the sick, even if they do not make a practice of it. Fines ranging from 40 cents to $40 can be imposed, with imprisonment for one or two weeks.

Bequests to Hospitals in London.—By the death of the widow of Mr. Sam Lewis, a well-known London money lender, over $5,000,000 will become available for charitable purposes. Among other items is $1,250,000 to King Edward's Hospital Fund for London.——Mr. Herring, who recently died in London, has also bequeathed immense sums to charity, including large bequests to London hospitals.

Additions to a Scottish Infirmary.—An addition to Falkirk Infirmary was opened during the second week in November. The addition consists of a wing for the accommodation of nurses, a new ward containing eight beds, a new operating theater with all the latest appliances, and new wash houses and laundry. The cost of the additions was about $17,500, which has been defrayed by public subscription and contributions from the employés of public works in the neighborhood.

Local Honors for Cajal and Golgi.—The fact that the Nobel prize this year has been awarded to Cajal and Golgi has roused their compatriots to do them exceptional honor. It has been proposed that one street in Madrid and one in Pavia be named after Cajal and Golgi, respectively, and the name of Golgi is to be given to one of the hospitals at Pavia. Various other projects also are being discussed. It is reported that Cajal may be knighted and made a senator for life and that endowed prizes may be given in his name. Both men have been previous recipients of some international prizes of lesser amount.

Imprisonment for Careless Medical Certificate.—It is reported from Frankfurt that a local physician gave a certificate to a married couple testifying that they had been physically maltreated by a certain inmate of the house. He made out the certificate without examining the pair, merely noting some scratches on the man, taking their word for the other injuries. The affair came into the courts and the physician was sentenced to three months' imprisonment for lack of care in making out the certificate and testifying to what had no existence in fact.

Coeducation at Glasgow University.—The senate of Glasgow University has recently decided that women students of physiology may attend the ordinary course of lectures on physiology for medical students at that institution. The *British Medical Journal* states that when certain subjects are to be taught the class is to be divided. In recent years the separate teaching of women students has added enormously to the work of the teaching staff. As the matter now stands, it seems that any professor can make application to be allowed to admit women to his class in the university and that in the course of a few years no provision for teaching medical students will be required at Queen Margaret's College (the women's department), as they will all be absorbed into the ordinary university classes.

Responsibility of Hospitals for Injuries Received Therein.—A suit is being tried at Cologne, Germany, in which a widow is suing the city for a pension, as her husband was killed by jumping from a window in the public hospital in the course of febrile delirium. She claims that the affair could not have occurred if the window had been properly protected against such contingencies, or if the patient had been properly supervised by attendants. It has been shown that the male attendant in charge of the case had left the room after entrusting the patient to two trained female nurses, but that the latter became frightened and left also. The verdict was against the plaintiff in the lower court, but the case was returned by the court of appeals, the verdict hinging on the point whether the hospital had sufficient male attendants for the supervision of male febrile cases. If not, then the authorities are responsible for damages. This point is now being argued, the court holding that male febrile patients should have one or two male attendants.

Teaching of Hygiene and Temperance in British Elementary Schools.—A committee of the British medical profession formed for the furtherance of the teaching of hygiene and temperance in elementary schools, comprising among its members such men as Sir Victor Horsley, Prof. Sims Woodhead and Sir Lauder Brunton, recently waited on the president of the board of education in regard to this subject. A resolution was passed requesting the adoption in the education bill now before the British parliament of the compulsory medical inspection of school children and the establishment in the education department of a medical bureau. The medical supervision of school children in Great Britain has been greatly neglected and in this respect is much behind America. Sir Lauder Brunton, in advocating the teaching of hygiene in elementary schools and among the lower classes generally, said that in the course of 25 years he had seen a large number of infants brought by their mothers to St. Bartholomew's Hospital, some of whom were living skeletons, chiefly due to the mothers using dirty feeding bottles. The consequence of ignorance of hygiene on the part of mothers is that babies are dying in multitudes, and this will continue until mothers are taught how to rear them. Such ignorance does not exist only among parents but among teachers. Lack of knowledge of even the first laws of hygiene is resulting in a holocaust of babies as well as of sending forth into life many stunted and deformed children.

CANADA.

The Montreal Maternity Hospital.—This hospital was conducted last hospital year on an expenditure of $15,267. Four hundred and three children were born in the institution. The management will appeal to the city for civic aid.

University News.—The lieutenant-governor of British Columbia has endowed a chair of chemistry and mining in the McGill University of British Columbia, to the extent of $1,500 annually; and Mr. A. C. Flummerfeit a chair of civil engineering to the extent of $500 annually.

Examination for Municipal Inspector.—The Royal Sanitary Institute of Great Britain, through its board of examiners for the Dominion of Canada, will hold an examination in Toronto, December 18. There is only one municipal inspector in Canada, Inspector Watson of Fort William, who has passed such an examination in Great Britain.

Muskoka Cottage Sanatorium.—At the ninth annual meeting of the National Sanatorium Association, in Toronto, November 17-19, the Muskoka Cottage Sanatorium, the parent institute of the association, reported, through its medical superintendent, Dr. J. H. Elliott, that 236 patients were treated last year, a number greater than in any previous year. During the nine years of its existence this sanatorium has treated 1,287 patients.

Unauthorized Use of Physician's Name.—On page 1840 of THE JOURNAL, December 1, an item announced that Prof. J. George Adami "states that his name has been used without authority in connection with the meeting of the American International Tuberculosis Congress and the American Antituberculosis League." Dr. George Brown, president and executive officer of the American Antituberculosis League, says that Professor Adami's name has not been used by the American Antituberculosis League.

Toronto Free Hospital for Consumptives.—Dr. W. J. Dobbie, the medical superintendent of this hospital, reports that during the last official year 149 patients were admitted, and that 336 have been cared for since the institution was opened two years ago. Buildings and improvements to the extent of $20,000 were added during the year. The hospital is for advanced cases. Three buildings in course of erection will furnish the nucleus for a new hospital for pay patients. This will be ready in June.

Muskoka Free Hospital for Consumptives.—Dr. C. D. Parfitt, the medical superintendent of this institution, states that during the past hospital year 186 patients were admitted, the daily average being 55. Sixty-five occupations were represented. In the four years this hospital has been in existence 752 patients have been cared for. During the year a new residence was erected for the superintendent at a cost of $5,000;

and a new administration building will be built at a cost of $15,000. This hospital is supported almost entirely by voluntary subscriptions.

Montreal General Hospital.—During the quarter ended September 30 932 patients were treated in the wards of the Montreal General Hospital. In that time there were 67 deaths, 33 of these occurring within three days of admission. In the outdoor departments there were 11,927 consultations. During the quarter admission had to be refused to many more patients than at any other time in the last few years. The revenue for the quarter was $17,549 and the expenditure $27,176. Dr. A. D. Blackador was appointed to represent the hospital on the Alexandra Contagious Diseases Hospital. Dr. F. S. Patch was appointed to succeed Dr. R. P. Campbell as medical superintendent Jan. 1, 1907.

LONDON LETTER.

(From Our Regular Correspondent.)

LONDON, Dec. 1, 1906.

The Chair of Comparative Pathology at the University of Liverpool.

Dr. H. E. Annett has been appointed to the newly established chair of comparative pathology at the University of Liverpool. This chair is the first of its kind established in Great Britain. Professor Annett has been assistant lecturer in tropical pathology at the Liverpool School of Tropical Medicine and lecturer on comparative pathology at the University of Liverpool. He was a member of the first expedition sent out by the Liverpool School of Tropical Medicine to West Africa in 1899 and 1900, and directed the second expedition.

Research into Yellow Fever.

A telegram has been received from the expedition of the Liverpool School of Tropical Medicine which has been in Brazil since the beginning of 1905 with the object of investigating yellow fever. It states that the expedition has just been successful in proving that chimpanzees can be infected with yellow fever by means of the stegomyiæ. This discovery will be of the highest importance to those investigating the disease. Both the doctors of the expedition contracted yellow fever in the earliest stages of their investigations.

Improved System of Food Inspection.

Better means of inspection of London's food supply are urged by the Public Health Committee of the London County Council. Some 1,500,000 tons enter London by the Thames every year. Conditions are very different from those of fifty years ago, the tendency being to transfer from London nearly every process of food preparation that can be carried on elsewhere. In many cases the change greatly improves the quality and lowers the price; but it necessitates examining the food on entrance and it is not possible, even were it desirable, to inspect in detail all the food stuffs entering the port. The ideal sought must be an effective agency which will detect underhand methods in the dishonest trader rather than the establishment of a scheme of inspection in detail. There are many obstacles to efficient inspection. The present system constitutes posts of observation, but these are so isolated that the dealer in unsound food readily learns how to avoid them.

The Royal College of Surgeons.

The twenty-second annual meeting of fellows and members of the Royal College of Surgeons has taken place. The question of direct representation of members on the Council has been before the annual meeting for many years and a resolution in favor of it has been carried by large majorities. The members have no voice whatever in the government of the college and it is only at the annual meeting of members and fellows that they can express any views. They may then pass resolutions, but have no power to carry them into effect. At this meeting Mr. Joseph Smith moved the following resolution which was seconded by Sir Charles Hutchinson and carried by 40 votes to 3: "This annual meeting of fellows and members reaffirms the desirability of admitting members to direct representation on the council which as now constituted does not represent the whole corporation." The following resolution was also carried: "This meeting recommends that when the question of admitting women to the college examinations is brought before the fellows and members this should be done by means of a poll of the fellows and members."

An Institution for the Crippled.

The Lord Mayor of London has decided to raise a fund of $300,000 for the establishment of an institution for the crippled children of the metropolis. The scheme has been drawn up with the advice of experts and has received the approval of the king. For many years the lord mayor has taken a charitable interest in the 7,000 London crippled children and sends to each one a Christmas hamper. He now desires to found a permanent institution. This will not displace a single existing agency nor compete with any similar institution. As many crippled children suffer from tuberculosis it is proposed that the institution be situated near the sea, so that treatment may be undertaken in the best air. The scheme provides that the crippled shall, whenever possible, be trained to become wage earners. The proposed institute will thus be both curative and educational.

The Medical Libraries of London.

Mr. Prideaux of the Royal College of Physicians has published in the *Library Association Record* an interesting paper on the medical libraries of London. He classifies them in 5 divisions according as they belong, respectively: (1) To the medical corporations and the university; (2) to the general medical societies; (3) to the special medical societies; (4) to the medical schools and hospitals; and (5) to the postgraduate schools. Class 1 is represented by the libraries of the Royal College of Physicians, Royal College of Surgeons, the Society of Apothecaries and the University of London. With regard to the first two of these many historical details are given. Class 2 includes the libraries of the Royal Medical and Chirurgical Society, the Medical Society, the British Medical Association, the Hunterian Society and the West London Medico-Chirurgical Society. Class 3 consists of the libraries of the Obstetrical Society, the Ophthalmological Society, the Laryngological Society, the Otological Society and the British Balneological and Climatological Society. Class 4 includes the libraries of 11 medical schools. The contents of the most important of these libraries, so far as can be ascertained, is as follows: Royal Medical and Chirurgical Society, 60,000 volumes; Royal College of Surgeons, over 50,000 volumes; Royal College of Physicians, 25,000 volumes; and University College (medical section), over 16,000 volumes. Mr. Prideaux also refers incidentally to the libraries of the Pharmaceutical Society and the Royal Sanitary Institute, as well as to one which is being formed by the Pharmacopeial Committee of the General Medical Council.

The Street Noises of London.

The street noises of London have been greatly increased by the recent introduction of the motor bus and in many neighborhoods constitute a great nuisance. A "Noise Abatement Committee," consisting principally of physicians, held a meeting at the rooms of the Medical Society of London. Among those present were Sir Dyce Duckworth, Mr. Mayo Robson and Dr. Radcliffe Crocker. The following resolutions were adopted: 1. The present excess of noise in the public thoroughfares of London is such as to cause disastrous consequences to the health and vitality of the people, and legislation in respect to the growing evil of street noises is urgently needed and should be promoted without delay. 2. Legislation should provide for prevention by the police of street shouting by coal or other hawkers, costermongers, milkmen, and vendors of newspapers, of organ grinding and of itinerant brass bands and other forms of music; it should also provide for the effective supervision, regulation and control as to speed and otherwise of all classes of vehicles used for the carriage of passengers or goods, such as motor omnibuses, traction engine, lorries and trucks; the routes through which such vehicles should be allowed to pass should be directed; and noisy traffic through purely residential streets should be prohibited at least between midnight and 6 a. m.

Novel Method of Encouraging the Care of Infants.

Alderman Broadbent, a brother of Sir William Broadbent, has reported the result of a curious philanthropic experiment made by him. During the year he was mayor of Huddersfield he promised to give every child born in the district of Longwood $5 on the first anniversary of its birth. His object was to ascertain whether through the constant watchfulness of a band of women workers, who help the mothers by advice, the infant mortality of Longwood could be reduced. During the past decade the average infant death rate has been 139 per 1,000, while in the Longwood district it has been 122. The alderman has accomplished his purpose. Throughout the two years over which the experiment extended the conditions have been by no means favorable, as whooping-cough and measles have been prevalent. The number of babies who received the promissory note was 112, and out of these 107 received the $5. Counting four as dead, the mortality is at the extraordinary low figure of 35 per 1,000; counting all five who have not received the gift it is 44. The babies belonged to all classes and some lived in slums. The experiment shows how largely preventable is the high mortality of infancy.

Pharmacology

Liquid Saponated Petrolatum Improved.

LIMA, OHIO, Oct. 11, 1906.

To the Editor:—I take pleasure in submitting for THE JOURNAL the following formula, the manner of preparation and a few words concerning the properties of its ingredients:

Oleic acid	50 grams.
Spirits of ammonia	25 grams.
Paraffin oil	100 grams.
Oil of wintergreen	17.5 grams.
Acetanilid	8.75 grams.

Mix the oleic acid, paraffin oil and spirits of ammonia in a porcelain-lined evaporating dish of convenient size, and apply heat from a steam bath for one-half hour. Permit the solution to cool and add alcohol q. s. 175 grams. Add the oil of wintergreen and dissolve the acetanilid. Filter if necessary.

The medicinally active ingredients of the above formula are indicated empirically and rationally, I believe, in the treatment of neuralgia. The vehicle is a substitute for that of the vasogen compounds, and was published some years ago in the *Pharmaceutische Zeitung*. It is of special value in that it possesses the remarkable property of mixing with both the oily and aqueous excretions of the skin, and, therefore, has penetrating qualities of the highest order. The preparation produces an elegant pharmaceutical, presenting an agreeable appearance and possessing the pleasant odor of wintergreen. In a case of facial neuralgia of long standing which had resisted all manner of treatment, the preparation produced the most gratifying results by local application and rubbing well into the parts affected. In cases of nasal neuralgia accompanied by a dry catarrhal condition, an atomizer may be used with advantage. It is my conviction that the formula is deserving of trial, and will produce results superior to any of the many preparations heretofore recommended.

JOHN W. FORBING.

[COMMENT.—The above formula consists of that of the National Formulary (III) Petrolatum Saponatum Liquidum, the so-called "Liquid Petrox" with the addition of the medicinal agents, oil of wintergreen and acetanilid. While the combination is not novel yet it indicates how this preparation, as well as its more ointment-like form, Petrolatum Saponatum Spissum, or "Solid Petrox," may be utilized for preparing combinations of similar character. While the assertion associated with the introduction of the original article of this kind, "vasogen," that this preparation has decided penetrating power, has not been disproved, yet it has been challenged from time to time and it would be desirable that the combinations with the salicylates, iodin, etc., should be subjected to thorough clinical demonstration and results reported.]

Coloring Matter in Food Products.

The use of coloring matter in food products is discussed in the second bulletin of the Illinois state food commission. The use of these substances has recently received much attention from food officials and the drastic action in some cases has led to a somewhat general adoption of a false opinion regarding their injurious character. It is necessary, the bulletin states, that these false ideas should be corrected and that people should not be governed by false prejudices in the purchase of food.

The use of coloring matter has been carried to an extreme; the ingredients furnishing the natural color are seldom used. An instance of this is found in lemon extract, the natural yellow color of which is furnished by the peel. The peel is now seldom used, the yellow color being supplied by anilin dyes. The manufacturer of the cheapest extract generally puts in the most artificial color, and the best extracts, naturally colored, though possessing a marked color when fresh, soon lose all or nearly all of it. Preserved strawberries, likewise, soon lose their natural red color, but the artificially colored brands hold their color and, therefore, are commonly accepted as the best. The coloring material conceals the presence of partially ripened or defective fruit, and the consumer is deceived by the appearance. In some articles, such as colored sugars and most candies, the color used does not indicate anything in regard to the purity, quality or flavor of the food or any of its ingredients; it is added to please the eye, and the only question is whether or not the colors are harmless.

Mineral colors, except ultramarines and certain compounds of iron, are regarded as harmful. Animal and vegetable colors are considered harmless. Anilin dyes, coal-tar colors and synthetic colors are different names for the same substances. By inexperienced and uneducated persons, the bulletin states, all these dyes are classed as poisonous. This classification is not entirely correct. Each color must be classified according to the results of experiments on animals, which have shown that some are harmful while others are harmless.

So far as their effect on health is concerned, the bulletin states that the coal-tar dyes which have proved harmless when administered to small animals, such as guinea-pigs, even in continuously large doses, may be as safely added to food as the vegetable or animals colors.

The bulletin also states that the prejudice against anilin dyes may have been founded on the poisonous impurities remaining in these colors as formerly manufactured. They were formerly prepared by the use of poisonous metals or acids containing such metals as impurities, and were liable to retain the poisonous substance in the final product. New methods of manufacture and the use of pure acids, etc., have now practically eliminated this danger in colors prepared for use in foods.

The Kansas Bureau of Investigation and Publicity.

Under the auspices of the Kansas State Board of Health and the State Board of Pharmacy, Prof. L. E. Sayre, dean of the School of Pharmacy of the University of Kansas, offers to investigate drugs and medicines to determine whether they conform to the United States Pharmacopeia standards of purity and strength. The bureau will test any official inorganic salts and determine the percentage of purity according to the Pharmacopeia. Organic medicinal chemicals and those subject to deterioration will be tested in order to ascertain their quality and medicinal activity. Microscopically the department is prepared to examine spices, condiments, commercial starches, whole and powdered drugs, grain and grain products, such as flour, meal, etc. The following are the rules governing analysis of drugs:

1. Analyses will be made of drugs and medicines suspected to be adulterated within the meaning of the law. Analyses of medicines simply to ascertain their composition will not be made.

2. Analyses of drugs or medicines will be made in cases of suspected poisoning, if sent in by local or state health boards, or by the county coroner having the case in charge.

3. Samples for analysis as above indicated must be sent from the local or state board. All charges must be prepaid, and a letter of information must accompany the package.

4. All samples sent in must be in sufficient quantity, and sent directly to Prof. L. E. Sayre, Department of Pharmacy, Lawrence.

The Nostrum Alcohol Consumption.

While statistics show that the average consumption of alcoholic drinks *per capita* is less in this country than in most others, it must be remembered that the figures do not include the "patent-medicine" tippling. We know of no reliable figures regarding the extent of this, but its existence as an evil will be denied by no one. One has only to estimate the profits of peruna manufacturers by the amount of advertising they are willing to pay for to see what a formidable amount of alcoholic consumption it implies, and this is only one of many disguised alcoholic drinks, to say nothing of those that are a little less misleading in their nomenclature, such as the various bitters, etc., which have so extensive a sale. The worst of this business is that many of the imbibers of these alcoholic mixtures are not aware of the habit they are creating or that they are in the hands of the drunkard recruiting agency. Temperance organizations would do well to devote a larger proportion of their energies to the suppression of the nostrum evil, not neglecting, of course, the more open sale of alcoholic drinks. If the consumption of alcohol by both these methods could be computed it might make a very perceptible increase in the official figures.

Correspondence

The One-Year Clause in Reciprocity.

CHICAGO, Nov. 24, 1906.

To the Editor:—A few of the states engaging in interstate reciprocity require that the original license on which the applicant requests reciprocal recognition, shall have been issued at least one year prior to the issuance of the license under reciprocity.

On June 20, 1906, the Illinois State Board of Health adopted a resolution to the effect that, after January 1, 1907, it would decline to reciprocate with any state exacting the above requirement. A short time later, the Minnesota State Board of Medical Examiners rescinded the above rule, which had previously been adopted by it, and the Wisconsin State Board of Medical Examiners likewise placed itself in accord with the Illinois Board.

One of the states with which Illinois had previously reciprocated, at once terminated reciprocity, although several months intervened before the rule of the Illinois Board would become effective—an act strangely at variance with the avowed advocacy of that state for the furtherance of the interests of practical reciprocity. The reasons assigned by this sister state for continuing the "one year requirement" are as follows:

> "It is the best safeguard yet devised to prevent the roving charlatan, without any place of residence, from obtaining a license in ————." "It is believed by the ———— board that a certificate of moral and professional character, signed by parties (sic) of less than one year's acquaintance and actual knowledge of applicant's ethical standing, is of little value in determining the real character of the applicant." "It will also prevent state boards with commercial inclinations from inducing recent graduates and others to give up two fees instead of one, if examinations were taken where practice is intended."

Let us see how the rule works in practice. In Chicago, for example, all students who are certified to the Illinois State Board of Health as members of the senior class in good standing in a recognized medical school are granted the courtesy of a conditional examination at least one month before graduation. Their papers are rated, and, if they have succeeded in attaining the required grade on examination, licenses are issued to them after they have received their diplomas and have presented them to the board for verification. They are thus ready to engage in practice and with the least possible expenditure of time and money in securing the requisite license.

Suppose that one of these men wishes to engage in practice in the neighboring state above referred to, and with which Illinois reciprocates. He is first required to conform to the following conditions exacted by that state: He must present (a) a diploma from a recognized medical college; (b) evidence that his preliminary education is up to the standard; (c) a certificate of good moral, professional and ethical character from the board of his own state. He must (d) state under oath that he has never been a charlatan or quack, and promise under oath never to become one, and, he must present (e) a license issued by the state board of his home state, and (f) a certificate from that board stating that his entrance requirements are up to the standard, that he is a graduate of a medical college and that he has been examined by the board and found duly qualified, and is unreservedly recommended as a proper person to receive a certificate under reciprocity. Even if he conforms to all of these requirements, he is informed that he is not eligible to a certificate under reciprocity; that his certificate is but twelve days old, and that he must wait until it has become twelve monthe old.

Does his waiting eleven long months have anything to do with his becoming a charlatan? Is he less apt to become a charlatan after a year of unsuccessful practice, in a location which is not his by election, than he would be immediately on his graduation? Is it for a moment to be assumed that, because a man has been a medical student or a hospital interne for the preceding year, it is impossible for him to furnish a certificate of good character? Is it probable that the physicians who have known him more or less intimately for twelve months would be better qualified to certify to his character than those who have come in intimate contact with him in medical school each day for four college years? Is it to be assumed that the certificate issued by a state board is meaningless, valueless and fraudulent, because the applicant has not been engaged in the practice of medicine in the state for 365 days? Such an assumption is absurd. To refuse to accept the certificate of a sister state for the reasons enumerated above, is insulting to the intelligence and integrity of the board issuing it.

The statement that the requirement that the certificate be at least one year old "will also prevent state boards with commercial inclinations from inducing recent graduates and others to give up two fees instead of one," merits no comment, save that no board could conscientiously or properly enter into any form of reciprocal relationship with sister boards in whose honesty and integrity there was such grave doubt as is implied by the remark.

There seems to us no more valid reason why an applicant's license should be one year old before it is recognized as a legal document, than that his medical diploma should be a year old before he is permitted to take the examination of the state board.

The Illinois State Board of Health is desirous of doing nothing that will interfere with interstate reciprocity on a fair, rational legal basis. It does object, however, to having its licentiates discriminated against in what it deems to be an unfair, arbitrary manner, and its certificates discredited without reasonable justification therefor. The one year requirement might be worthy of closer and more careful study and consideration did more of the examining boards of the nation attach importance to it. As a matter of fact, however, but two of the thirty reciprocating boards of the nation, so far as we know, have such a rule in force. Two others, which once adopted such a rule, abandoned it as unnecessary.

I shall be pleased to hear from those interested on either side of this question, either personally or through the columns of THE JOURNAL.

GEORGE W. WEBSTER.
President Illinois State Board of Health.

Comparative Prices of Various Proprietaries and Pharmacopeial Preparations.

Tiverton, Mass., Nov. 12, 1906.

To the Editor:—I have just received samples of cystogen from St. Louis. The price is $1 an ounce. Why should not the physician keep himself posted in the current prices of preparations and not be imposed on by these firms who are filling the shelves of the druggist and the table of the physician with goods under some fanciful name when the same thing can be obtained from some reputable manufacturer at about one-sixth of the price. For example, Mallinckrodt lists hexamethylenamin at 17 cents an ounce, $1.75 a pound, while Merck lists the same preparation, under the trade name of formin, at the same price. In the article advertised by the Cystogen Chemical Company there does not appear to be any deception except in the name and the statement that it is "A preferred product of hexamethylene tetramine remarkably free from irritating properties." The name appears to be synonym of hexamethylenamine of the U. S. P. But the price!!

EDWARD P. STIMSON, M.D.

The Migratory Needle Story.

PHILADELPHIA, Nov. 30, 1906.

To the Editor:—The belief that needles travel through the tissues of the body is an old one, and in the lay mind the anxiety to have them removed promptly is very prevalent. How such a belief could become so universal was made clear to me by the following case: A colored woman, who was being embraced by her admirer, while sitting on a sofa, suddenly experienced pain due to the entrance of a needle, causing her to cry out. On looking at the site of the pain a needle, broken level with the skin, could be readily felt and seen. She came immediately to my office, but when she reached it the needle had disappeared. I cut down on it and readily extracted it.

The explanation of the disappearance in this case was that in putting on her coat she had probably stretched the skin, which, becoming tense, slipped over the broken end of the needle. In reality the needle was exactly where it was when

it entered, but in the opinion of the patient it had traveled. Needles will travel, and this is explained by the fact that there is a sharp and a blunt end. They travel in the direction of the pointed end. In the various movements of the body, pressure is made on all sides of the needle, but it can only move lengthwise and in the direction of least resistance. In cutting for a needle, especially in the dense tissues of the palmar and plantar surfaces, the point of entrance should be taken as the center of a semicircular incision, and, a flap being raised, the only reliable searcher is the finger. OSCAR H. ALLIS, M.D.

NEW YORK CITY, Dec. 4, 1906.

To the Editor:—The pace having been set for the wandering needle, it is now my turn. We were smoking our pipes around the camp-fire after a good dinner of venison and trout. Apropos of some suggestion I told of the travels of a needle. It was a mild story—being mine. "That's nothing," said Dick, "me and Larry was trapping one winter, and we slept together. He got a porcupine quill in his leg in the fall, and in the spring it came out of my shoulder." ROBERT T. MORRIS.

STILLWATER, OKLA., Dec. 4, 1906.

To the Editor:—I have read with interest the tales of foreign bodies in the flesh published in THE JOURNAL. I had a very peculiar case of this kind. A married woman, 35 years old, stuck a needle in the middle finger of the left hand. Sixteen months later she gave birth to twins and one-half of that needle was in the corresponding finger of each twin at birth.

J. G. GRAY.

[Several other communications have been received, but when the above letters from Drs. Morris and Gray arrived we concluded that it was time to end the discussion.—ED.]

Miscellany

INTERNATIONAL SANITATION.

Arrangements to Facilitate Sanitation in Relations of American Republics.

The Third International Conference of American Republics, which met at Rio de Janeiro during the summer of 1906, adopted the following recommendations relating to international sanitation:

SANITARY POLICE.

Aug. 23, 1906.

The Third International American Conference recognizes the utility of the principles of international sanitary police, which inspired the last convention celebrated in Rio de Janeiro, applicable to a definite region, and the convention signed in Washington, Oct. 14, 1905, which is applicable to all the nations of America, and, in virtue of this, recommends to the countries here represented:

1. That, as a general rule, they adopt the said International Sanitary Convention of Washington, adhering to it and putting its precepts into practice.

2. The adoption of measures tending to obtain the sanitation of cities and especially of the ports and to attain as far as possible to a better knowledge and a greater observance of hygienic and sanitary principles.

3. The advisability that all American nations attend the next International Sanitary Convention to be celebrated in the City of Mexico in December, 1907, and that they instruct their respective delegates to study and solve the following points:

A. A practical means of rendering effective the second of the present recommendations.

B. Establishment and regulation in each of the American countries of a committee composed of three medical or sanitary authorities to constitute, under the direction of the International Sanitary Bureau, established at Washington, an International Sanitary Committee on Information of the American Republics, with authority to meet and to communicate between themselves data referring to public health and for any other purpose that the convention may think proper.

C. Establishment and regulation in some place in South America designated by the convention as a center of sanitary information that shall supply to the already existing International Sanitary Bureau the elements necessary to carry out the recommendations 5, 6 and 7 on sanitary police, made by the Second International American Conference.

D. Establishment of relations between the International Bureau established at Washington and the (Bureau Sanitaire International) of Paris, in order to obtain the best information in sanitary matters and to make resolutions tending to the object entrusted to both bureaus.

4. In accordance with the provisions of Article 3, paragraph c, the city of Montevideo is hereby designated as the "center of sanitary information."

The first recommendation relates to the agreement signed by the delegates to the International Sanitary Convention in Washington, October, 1905. This agreement is on quarantine measures against cholera, plague and yellow fever. Practically all of the countries represented at the convention in Washington have ratified this agreement, and the Rio conference has recommended that all of the American republics, including those not represented in the Washington meeting, take the same action.

The second recommendation contemplates an international agreement looking to improved sanitation and the elimination of disease from seaport towns.

The third recommendation throws on the next International Sanitary Convention, which is to be held in Mexico in December, 1907, the duty of devising some form of international agreement for such sanitation, and further provides for a committee in each country to obtain sanitary information. These committees in the southern republics will transmit their information through a central bureau in Montevideo to the International Sanitary Bureau in Washington.

These resolutions mark an advance over previous sanitary agreements which related entirely to quarantine defense. They were evidently based on the suggestions made by the surgeon general of the Public Health and Marine-Hospital Service, who, at the request of the Secretary of State, prepared suggestions on the subject of international quarantine and sanitation for consideration at the Rio conference. The surgeon general's letter, which follows, was printed and was included in the instructions given by Secretary Root to the American delegates.

TREASURY DEPARTMENT.
BUREAU OF PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

WASHINGTON, May 30, 1906.

Honorable Elihu Root, Secretary of State:

Sir:—In accordance with your request I submit herewith certain considerations regarding quarantine, hygiene and sanitation, which appear to me worthy of being brought before the Third Conference of American States to be held in Rio de Janeiro in July next.

PROPOSITIONS.

1. International conference on health matters have heretofore considered only the management of epidemic diseases in their progress from one nation to another.

2. These diseases are simply the result of unhygienic conditions in the several countries.

3. These unhygienic conditions are local, and the responsibility on their account lies with municipal or state authorities.

4. The national governments, therefore, are required to deal with conditions due to faults of the states and municipalities.

5. In the measure to prevent the spread of disease from one country to another, plainly the duty of the national governments, the latter are, therefore, dealing only with the effects and not with the cause; they are dealing with the symptoms rather than with the causative conditions.

6. Therefore, notwithstanding that the *fons et origo* of disease is ordinarily considered as within the legal jurisdiction and administration (police power) of the states and municipalities, the national governments must find some means of exercising effective influence in these local conditions which produce disastrous effects that quickly become the care and responsibility of the nation.

7. Quarantine, and quarantinable diseases, which heretofore have been the subject of international conventions and agreements, should now be put to one side as having been duly considered and acted on; and an advance should be made in international deliberations by the consideration of hygiene and sanitation; in other words, the deliberations of international sanitarians should be transferred from ships to the shore.

8. In considering the possibility of an international agreement for a more direct and effective influence of the national governments in local sanitation and hygiene, it will be more practicable to limit such agreement to seaport cities and towns, since these are the points of contact between nations.

9. In the effort to perfect the sanitary and hygienic condition of seaports, we find an international commercial justification therefor in the resultant elimination of yellow fever. There is another all important disease, tuberculosis, for whose elimination the commercial reason does not apply, but against which the whole civilized world is making warfare. This disease, on account of its universality and contagiousness, is well worthy of consideration in international agreement, irrespective of the commercial relations between nations.

10. In the sanitary and hygienic measures necessary to eliminate the two above-mentioned diseases, yellow fever and tuberculosis, are embraced the sanitary and hygienic measures (with the excep-

tion of minor details) necessary to overcome all the greater epidemic and domestic contagious diseases.

11. The more specific the objects of an agreement, the more direct and effective will be the efforts to enforce it. Therefore, there is recommended an international agreement for national effort in sanitary and hygienic measures necessary to eliminate yellow fever and tuberculosis.

From the foregoing propositions, it appears necessary that the central or national government of each republic should give greater attention to local sanitary measures. It is admitted that the activity of the national government in local sanitation is more difficult in some of the republics than in others, yet it is believed that in all much can be accomplished beyond the present activities and beyond the limitations which now seem to be acknowledged.

The proposed limitation of an international agreement to seaports is defended by the following considerations:

First.—Seaports have a more direct influence in conveying diseases from one country to another than interior ports.

Second.—The good effect of sanitation in seaports will be so obvious that interior cities will take note thereof and profit by the example.

Third.—By making the agreement relate to seaports only the scope thereof is limited and defined, and the plan, therefore, more practicable.

It may be remarked that in many of our larger seaport cities, such as New Orleans, Rio de Janeiro, Vera Cruz, and others, sanitary improvements of a broad character, such as improved water supply, sewerage, drainage and paving are already under way.

In quite a number of the smaller ports, particularly in some of the Central and South American republics, there has been manifested during the past four years an awakening of the need of sanitation, and actual work has been done. But in all our larger ports, no matter how extensive the improvements, much remains to be done to bring local sanitation and hygiene up to the required standard, and in numerous smaller ports in all of the republics, both on the Atlantic and Pacific coasts, sanitation is at the present time outrageously neglected. These smaller seaport towns and cities are potent factors in the breeding and dissemination of disease, and yet their proper sanitation would involve comparatively moderate expense.

In considering local sanitary measures, it is worthy of note that measures to eradicate and prevent two of the most important diseases will be sufficient practically for the eradication of other communicable diseases.

Sanitation for tuberculosis requires sufficiency of air and sunlight in domiciles, good water supply, drainage and sewerage, while the sanitation for yellow fever, demanding the removal of collections of water to prevent the breeding of mosquitoes, involves general hygienic condition of premises; so that with the cleanliness in and around the domicile, and assurance of the proper environments of man, conditions are produced favorable to the elimination of all disease.

The whole civilized world is fighting against tuberculosis, the great white plague, which causes at least one in seven of all deaths; and any international agreement for its suppression will redound to the honor of every nation concerned therein. As to the yellow plague, yellow fever, a disease which is the curse of the western hemisphere, conjoint action of the republics is necessary for its elimination.

It is, therefore, respectfully suggested that the delegates from the United States to the Rio Conference endeavor to secure from the conference by treaty, or by resolution, or in whatever form they deem to be most practicable, the adherence of each of the republics represented in the conference to the foregoing principles and their practical application.

The agreement should recite that epidemic diseases, which so frequently require national intervention, are due to insanitary local conditions, and that the central, or national, administration of each republic will use its utmost endeavors to institute and enforce locally in its several seaports all the sanitary measures, destructive, constructive, and administrative, which are necessary to eliminate tuberculosis and yellow fever.

In addition to the reasons given above, showing the necessity for such an international agreement, there are others which, though less urgent, should nevertheless lend encouragement thereto. It gives opportunity for the countries represented in the Rio conference to set an example which may be utilized in the coming Hague conference at which it is understood all the republics of the western hemisphere will be represented.

In the present relations of nations with one another there are two facts which seem strangely at variance. *First*, the regularly increasing naval and military armaments. *Second*, The rapidly growing sentiment for universal peace and disarmament.

Few will deny that universal peace is a desideratum. It is said that it is the purpose of the interparliamentary union to make of the Hague Conference a permanent body composed of two houses, an upper house representing the executives of the world, and a lower house composed of the members of the highest legislative bodies of the powers of the earth.

Even if such a body is formed, it would be marvelous if of itself it should be able to bring about a disarmament of the nations. Increase in armaments provides increase of employment of all kinds, manual, professional and administrative, and furnishes an outlet for the energy of a nation. It is worth considering whether a diversion of this energy is not more practicable than its abrupt termination.

A celebrated manufacturer in the United States, with a plant covering several acres, was much annoyed by the mischievous activities of a large number of boys in the neighborhood who trespassed on the property, maliciously injuring the same. Instead of arresting them and causing their punishment, he diverted their energies by purchasing land immediately around his plant and employed them in the development of lawns and gardens, thus adding to the attractiveness and utility of his possessions and transforming his annoying neighbors into agents of help.

This may be a homely illustration, but surely an international hygienic agreement which would demand physical operations of great scope and professional and administrative energies of the highest character would be more effective by diverting such energies from naval and military establishments than would be an effort to discontinue or abandon the military and naval armaments.

The same principles apply whether reference is made to disarmament, arbitration or the world-wide movement for peace.

An international agreement for sanitation, with the avowed purpose of eliminating communicable diseases, will furnish a plane on which nations may meet and an object for attack against which all nations may combine without fear of international complications.

In closing, there is one more suggestion which I have respectfully to make.

At the Second International Conference of American States in the City of Mexico, 1901-2, resolutions were passed providing for international sanitary conventions and for the establishment of an international sanitary bureau. Two conventions have been held, and at the last one, held in the City of Washington, October, 1905, there was signed by the delegates an agreement *ad referendum* relating to the management of ships and persons infected with or exposed to the infection of cholera, bubonic plague and yellow fever. This agreement has been approved by the Senate of the United States, and it is expected that it will be approved by the governing bodies of the other nations represented in the convention. It is worthy of the efforts of the delegates from the United States to secure the adherence to this same convention of those of the republics of the western hemisphere which were not represented at the Washington meeting The adherence of every republic in the western hemisphere to the principles announced in that convention would make complete so far as possible the understanding with regard to these quarantinable diseases, and would enable all of the republics hereafter to give their undivided attention, so far as international agreement is concerned, to the more important subject of hygiene and sanitation.

I have the honor to remain, respectfully,

WALTER WYMAN,
Surgeon-General,
Chairman, International Sanitary Bureau
of the American Republics.

Gelatin in Melena Neonatorum.—Neu contributes an article on this subject to *Med. Klinik* for October 17, reporting 2 cases and reviewing the literature. The mortality before 1900 ranged from 35 to 60 per cent. in 232 cases. Since the introduction of gelatin treatment the mortality has dropped to 13 per cent. in 23 cases. The gelatin should be injected as promptly as possible at the first signs of true melena, giving a subcutaneous injection in the thigh of from 10 to 20 c.c. of a 10 per cent. solution. The action by the mouth is unreliable and gelatin enemata are not advisable. There may be a slight febrile reaction, but it is harmless and transient. The child should be kept scrupulously warm and quiet, and given only breast milk after restriction to tea for a time. Local cold applications or compression to the abdomen and internal hemostatic measures should be avoided.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Dec. 8, 1906:

Eastman, Wm. R., asst.-surgeon, granted leave of absence for one month.

Manly, C. J., asst.-surgeon, assigned to temporary duty at Fort Myer, Va., until December 13, when he will proceed to Cuba for duty in compliance with orders heretofore issued.

Fife, James D., asst.-surgeon, left Fort Slocum, N. Y., en route to Jefferson Barracks, Mo., on detached duty.

Rutherford, H. H., asst.-surgeon, ordered to proceed from the Army General Hospital, Presidio of San Francisco, to Washington, D. C., in charge of insane patients.

Ford, Clyde S., asst.-surgeon, relieved from duty at Medical Supply Depot, New York City, and ordered to report to the Military Secretary of the Army for instructions in the matter of personal identification record, and upon completion of this duty to proceed to the Philippine Islands for duty.

Duncan, Wm. A., asst.-surgeon, reported for duty as surgeon on transport *Thomas* at San Francisco, Cal.

Lewis, Wm. A., asst.-surgeon, assignment to station at Fort Snelling, Minn., revoked; relieved from temporary duty at Fort Monroe, Va., and ordered to Army General Hospital, Presidio of San Francisco, Cal., for duty.

Steer, Samuel L., asst.-surgeon, assigned to temporary duty at Fort Monroe, Va., pending sailing of transport to Cuba.

Harvey, Philip F., asst.-surgeon-general, granted leave of absence for one month, effective Dec. 10, with permission to apply for an extension of one month. During the absence of Colonel Harvey, Major Charles Richard, surgeon, will, in addition to his other duties, take charge of the office of the chief surgeon and perform the duties of that office.

Whitmore, E. R., asst.-surgeon, ordered to proceed from Fort Jay to Fort Slocum, N. Y., for temporary duty.

Marrow, Chas. E., asst.-surgeon, granted leave of absence for one month, with permission to apply for an extension of one month, effective on arrival in the United States.

Murray, Alexander, asst.-surgeon, relieved from duty at Fort Bayard, N. M., and to report in person to the chairman of the Isthmian Canal Commission, Washington, D. C., for duty with the Commission on the Isthmus of Panama.

Moncrief, Wm. H., asst.-surgeon, advanced to rank of captain from Nov. 30, 1906.

Whitney, Walter, contract surgeon, granted leave of absence for one month.

Hughes, Leonard S., contract surgeon, granted an extension of two months to his leave of absence.

Slayter, John T. H., contract surgeon, left Fort William Henry

Harrison, Mont., and arrived at Fort Lincoln, N. D., for temporary duty.

Slater, Ernest F., contract surgeon, left Fort Hancock, N. J., and arrived at Fort Banks, Mass., for duty.

Parkman, Wallace E., contract surgeon, returned to Fort Assiniboine, Mont., from temporary duty at Fort William Henry Harrison, Mont.

Ames, Roger P., contract surgeon, returned to Fort St. Philip, La., from temporary duty at Jackson Barracks, La.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended Dec. 5, 1906:

Smith, A. C., surgeon, granted leave of absence for three days, beginning December 2.

Rosenau, M. J., P. A. surgeon, detailed to represent the service at the meeting of the Society of American Bacteriologists to be held in New York City, December 27-28, 1906.

Grubbs, S. B., P. A. surgeon, granted one day's extension of leave of absence, December 3.

Parker, H. B., P. A. surgeon, granted leave of absence for twelve days from November 17, on account of sickness.

McClintic, T. B., P. A. surgeon, relieved from temporary duty on Revenue Cutter *McCulloch* and from duty at the San Francisco Quarantine Station, and directed to proceed to Manila, P. I., reporting to the chief quarantine officer for duty.

Wille, C. W., P. A. surgeon, granted leave of absence for two months, beginning December 9.

McCoy, George W., P. A. surgeon, leave of absence for two months, beginning October 4, amended so as to read for 1 month and 23 days only.

Steger, E. M., asst.-surgeon, granted leave of absence for three days, from November 24, on account of sickness.

Pettyjohn, Joseph, asst.-surgeon, relieved from temporary duty on the Revenue Cutter *Thetis* and from duty at San Francisco, and directed to proceed to Manila, P. I., reporting to the chief quarantine officer for duty.

Guthrie, M. C., asst.-surgeon, temporarily relieved from duty at Ellis Island, N. Y., and directed to proceed to Washington, D. C., for temporary duty at the Government Hospital for the Insane.

Barnes, W., acting asst.-surgeon, granted leave of absence for twenty-one days, beginning December 10.

Clark, E. S., acting asst.-surgeon, granted leave of absence for two days from November 21.

Gribble, B. G., acting asst.-surgeon, granted leave of absence for seven days under Paragraph 210 of the Regulations, from November 26,

Goodman, F. S., Pharmacist, relieved from duty at Norfolk, Va., and directed to report to the medical officer in command, Cape Charles Quarantine Station for duty and assignment to quarters.

Allen, G. C., pharmacist, leave of absence granted Pharmacist Allen for two months without pay from September 23, amended so that said leave shall terminate November 15.

Scott, E. B., pharmacist, relieved from duty at Baltimore and directed to proceed to Norfolk, Va., reporting to the medical officer in command for assignment to duty.

Hall, L. P., pharmacist, leave of absence for seven days from November 21, amended to read for five days only.

Stier, Carl, pharmacist, granted leave of absence for twenty-seven days beginning Dec. 5, 1906.

Eldredge, Merritt B., pharmacist, directed to proceed to Vineyard Haven, Mass., reporting to the medical officer in command for duty and assignment to quarters.

APPOINTMENT.

Mr. Merritt B. Eldredge was appointed a pharmacist of the third class, effective from date of oath.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service during the week ended December 7, 1906:

SMALLPOX—UNITED STATES.

Colorado: Las Animas County, Oct. 1-31, 3 cases, 2 deaths.
Georgia: Augusta, Nov. 20-26, 8 cases.
Illinois: Galesburg, Nov. 18-24, 17 cases.
Indiana: South Bend, Nov. 18-24, 4 cases.
Kansas: Seven Counties, Oct. 1-31, 23 cases.
Louisiana: New Orleans, Nov. 18-24, 3 cases; Shreveport, 1 case.
Missouri: St. Louis, Nov. 18-21, 3 cases.
New York: New York, Nov. 18-24, 1 case.
North Carolina: Greensboro, Nov. 18-24, 5 cases.
Ohio: Cincinnati, Nov. 24-30, 1 case.
Virginia: Richmond, Oct. 1-31, 1 case.

SMALLPOX—FOREIGN.

Africa: Cape Colony, Oct. 14-22, 15 cases.
Brazil: Rio de Janeiro, Oct. 22-24, 5 cases.
Chile: Coquimbo, Oct. 22-31, 28 cases, 1 death; Iquique, Oct. 29-Nov. 4, present.
Ecuador: Guayaquil, Oct. 24-31, 14 cases.
France: Paris, Oct. 28-Nov. 17, 7 cases, 1 death.
Gibraltar: Nov. 12-18, 1 case.
Greece: Athens, Nov. 9-15, 2 deaths.
India: Calcutta, Oct. 21-27, 3 deaths; Madras, Oct. 27-Nov. 2, 2 deaths.
Russia: Moscow, Oct. 28-Nov. 3, 1 case, 1 death; Odessa, Nov. 4-10, 4 cases.
Spain: San Feliu de Guixols, Oct. 11-17, 1 death; Seville, Oct. 1-31, 28 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, Oct. 28-Nov. 4, 1 case, 1 death.
Ecuador: Guayaquil, Oct. 15-30, 4 deaths.
Cuba: Havana, Nov. 28-Dec. 4, 5 cases; Matanzas Province: Jovellanos, Dec. 3, 1 case; Union de Reyes, Nov. 26-29, 3 cases, 1 death; Santa Clara Province: Isabela de Sagua, Nov. 29, 1 case.

CHOLERA.

India: Bombay, Nov. 1-6, 1 death; Calcutta, Oct. 20-28, 28 deaths; Karachi, Oct. 20-26, 4 deaths; Madras, Oct. 27-Nov. 2, 1 death; Rangoon, Oct. 21-27, 3 deaths; Negapatam, Sept. 22-Oct. 19, 19 deaths.

PLAGUE.

Australia: Cairns, Oct. 21-27, 3 cases; Sydney, Sept. 25-Oct. 1, 1 case.
Brazil: Rio de Janeiro, Oct. 28-Nov. 4, 34 cases, 10 deaths.
Egypt: Alexandria, Oct. 30-Nov. 3, 1 case, 1 death; Suez, Oct. 30-Nov. 5, 1 case, 1 death.
India: General, Oct. 14-20, 7,876 cases, 6,216 deaths; Calcutta, Oct. 14-20, 7 deaths.
Japan: Fukuoka, Nov. 3, 2 cases; Iida, Nov. 3, present; Osaka, Oct. 10-Nov. 6, 24 cases, 17 deaths; Waykama Ken, Oct. 2-Nov. 6, 4 cases, 3 deaths.
Straits Settlements: Sept. 4-10, 1 case.
Turkey: Beirut, Nov. 6-10, 1 case.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending Dec. 8, 1906:

Gordon, F. T., pharmacist, placed on the retired list of officers of the navy from November 30, detached from Bureau of Medicine and Surgery, ordered home.

Gardner, James E., medical inspector, to U. S. S. *Charleston*, Fleet Surgeon Pacific Squadron.

Gates, M. F., surgeon, detached U. S. S. *Charleston*, on reporting of relief, to U. S. S. *Chicago*.

Biddle, C., surgeon, detached U. S. S. *Chicago*, to Naval Training Station, San Francisco.

Smith, W. B., P. A. surgeon, detached Naval Training Station, San Francisco, Cal., to U. S. S. Raleigh.

Carpenter, D. N., surgeon, detached U. S. S. *Raleigh* to Naval Station, Cavite, P. I.

Alfred, A. R., surgeon, detached Naval Station, Cavite, P. I., home and wait orders.

Higgins, S. L., asst.-surgeon, U. S. N., to Naval Hospital, Norfolk, Va.

Furlong, F. M., surgeon, U. S. N., to Naval Hospital, Chelsea, Mass., detached Bureau of Medicine and Surgery.

Johnson, M. K., surgeon, to Norfolk Hospital.

Grow, E. J., surgeon, detached U. S. S. *Ohio*, to home and wait orders.

Oman, C. M., P. A. surgeon, detached Norfolk Hospital, to U. S. S. *Ohio*.

Dessez, P. T., asst.-surgeon, detached Washington Barracks, to Chelsea Hospital.

Gill, J. E., P. A. surgeon, detached Washington Yard, to U. S. S. *Dubuque*.

Heiner R. G., asst.-surgeon, detached U. S. S. *Scorpion*, to Washington Yard.

Bishop, W. L., P. A. surgeon, detached U. S. S. *Dubuque* to U. S. S. *Iowa*.

Grove, W. B., surgeon, detached U. S. S. *Iowa* to U. S. S. *Minnesota*.

Marriages

T. L. WHITEHEAD, M.D., to Miss Eulalia Shepherd, at Chatham, Va., November 21.

OTTAWAY T. FIELDS, M.D., to Miss Clara S. Hutt, both of St. Louis, November 29.

ADOLPH G. FREEDOM, M.D., to Miss Leah Weinkrantz, both of Baltimore, November 27.

ANDREW K. NAUGLE, M.D., to Miss Bessie Calvert, both of Abbott, Miss., November 21.

HARRY E. BUCKNER, M.D., Baltimore, to Miss Rose Kaplan, at Baltimore, November 29.

HARRY VANDERBILT WÜRDEMANN, M.D., Milwaukee, to May Audrey Parker, of Minneapolis.

VINTON BOYINGTON, M.D., to Miss Eva Spaulding Price, both of Waukegan, Ill., December 12.

MARY KAVENY, M.D., and Gwilym M. Lewis, both of Denver, at Idaho Springs, Colo., November 29.

NICHOLAS H. KERN, M.D., Thawville, Ill., to Miss Mayme Wolf of Louisville, Ky., November 28.

CHARLES J. SHAW, M.D., Putnam, N. Y., to Miss Lottie Robinson, of Burlington, Vt., December 1.

WILLIAM HAMILTON SMITH, JR., M.D., Baltimore, to Miss Katherine Powell Martin, at Washington, D. C., November 24.

SAMUEL F. GILLAM, M.D., to Mrs. Clarrie E. Cowell, both of St. Johns, Mich., at Pontiac, Mich., November 27.

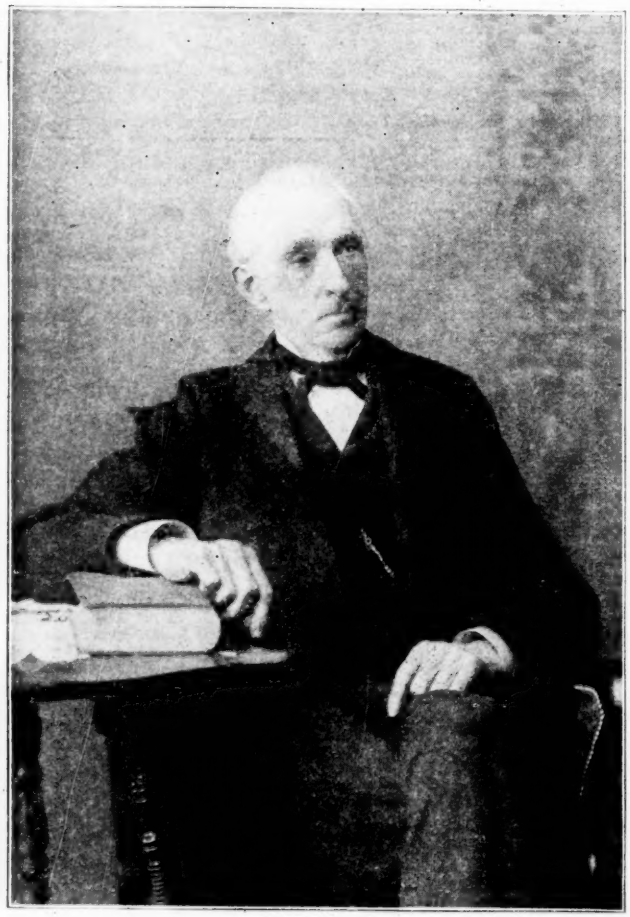
ROBERT PHILIPS MCREYNOLDS, M.D., Philadelphia, to Miss Frances Cornelia Coulter, of Los Angeles, Cal., December 12.

JAMES W. MASSEY, M.D., to Miss Mattie C. Biscoe, both of Spottsylvania, Va., at Antioch Church, Orange County, Va., November 20.

Deaths

Alonzo Garcelon, M.D.

Dr. Alonzo Garcelon of Lewiston, Maine, one of the oldest members of the American Medical Association, once its vice-president, and for many years a member of its Board of Trustees, who in all the years of his membership had never missed attending a meeting, with the exception of that in Portland, Oregon, in 1905, was found dead from accidental gas asphyxiation at the home of his daughter, Mrs. C. D. Dennis, in Medford, Mass., December 8, aged 93.



He was born in Lewiston and his preliminary education was obtained in the private grammar schools until 1829, when he went to Monmouth Academy and then to Waterville Academy, and later to Bowdoin College, Brunswick, in 1832, graduating therefrom four years later. During his college course he taught winter schools and was principal of Alfred Academy in 1836. After three years he relinquished teaching to study medicine and entered Dartmouth Medical School as a private student of Dr. Mussey. In 1838 his preceptor was elected professor of surgery in the Medical College of Ohio, Cincinnati, and young Garcelon went there with him. He obtained his degree of M.D. at that institution in March, 1839, and then served as interne in the hospital until October.

In 1853 he became a member of the American Medical Association and has been a constant and active worker since that time. When the Board of Trustees was organized to carry out the will of the association in regard to a journal Dr. Garcelon was elected a member of the board and served from 1882 to 1901, serving as chairman the greater part of that time. He was made vice-president of the association in 1901. He was one of the charter members and once president of the Androscoggin County Medical Society, and was one of the originators and once president of the Maine Medical Association. He served his state as governor in 1878 and was notable as the only Democratic governor that state has ever had. During the Civil War he was surgeon general of the state of Maine and for more than thirty years he was a member of the Board of Trustees of Bates College, was president of the State Agricultural Society and has been councilor, alderman, and mayor of Lewiston in 1871; representative in the legislature in 1853 and 1871; a member of the state senate in 1855, and has held many other positions of honor.

He was one of the first to secure the location of railroads in Lewiston and was for a time president of the Androscoggin Railroad. He, together with his brother-in-law, N. H. Waldron, established the Lewiston *Journal*, the first journal to be established in that portion of Maine. He was also one of the most persistent workers in securing the Maine State Seminary at Lewiston.

Dr. Garcelon was imbued with an enthusiastic public spirit. He worked for the development and improvement of his native town, Lewiston, urged the establishment of manufacturies, and built the first mill in that town. He was an early advocate of good roads and originated a central highway for the section east of Lewiston.

By the record from his own state and home Dr. Garcelon showed himself to be a man honest, industrious, faithful, patriotic and true in every sense of the word. Such he always was in his relation to the medical profession.

Fernand Henrotin, M.D.

Dr. Fernand Henrotin, one of the prominent practitioners of Chicago, died at his home from myocarditis, December 9, after an illness of three weeks, aged 59. He was born in Brussels, Belgium, Sept. 28, 1847, the son of Dr. Joseph F. Henrotin, a well-known practitioner of Chicago from 1847 to 1875. He received his education entirely in Chicago and, after his graduation from high school, entered Rush Medical College, from which he graduated in 1868. From 1868 to 1870 he was prosector at Rush Medical College; surgeon of the police department 15 years, and for 21 years of the fire department. For several years he was chief surgeon of the First Brigade, Ill. N. G. He served for many years on the medical staff of Cook County Hospital, and was president of the medical board. He was connected with the Chicago Policlinic and served as professor of gynecology, secretary, and, later and until his death, as president of that institution. He was deeply interested in the new Policlinic Hospital, which is now nearing completion. He was senior surgeon at the Alexian

Brothers' Hospital and gynecologist at the St. Joseph's and the German hospitals. For many years he was a member of the American Medical Association. He was a member of the Illinois State Medical Society, Chicago Gynecological Society, American Gynecological Society, Association of Military Surgeons of the United States, Association of Military Surgeons of the State of Illinois, and in 1896 was president of the Chicago Medical Society. During his term of office, and under his special supervision and management, the reorganization was undertaken which has resulted in more than trebling the membership of the society. For many years he was secretary-general for America of the International Congress of Gynecology and Obstetrics. Dr. Henrotin was a gynecologist of known repute and a bold, yet conservative, operator. He is said to have been the first operator in America to perform vaginal hysterectomy for suppurative pelvic disease. He has written many monographs of importance, most of which are on gynecologic subjects. His chapter on ectopic gestation in "Practice of Obstetrics," by American authors, and his article on gynecology in the International Text-Book on Surgery are especially noteworthy. At the time he was stricken with his last illness he had practically completed the section on vaginal hysterectomy for Kelly and Noble's gynecology. Dr. Henrotin was an ardent advocate of higher standards of medical education and was especially interested in postgraduate work; he published a small brochure about two years ago on "Democracy of Education in Medicine," which set forth his advanced views on this subject.

Otis Humphrey Marion, M.D. Harvard University Medical School, Boston, 1878; a member of the American Medical Association, Association of Military Surgeons of the United States, Massachusetts Medical Society, Cambridge Medical Society and Boston Benevolent Medical Society, Sons of the American Revolution and Naval and Military Order of the Spanish-American War; an officer in the medical department of the Massachusetts Volunteer Militia, from 1883 to 1903, during which time he rose from the rank of major to that of brigadier general and surgeon general of the state, during the Spanish-American War, major and surgeon of the Sixth U. S. Volunteer Infantry and acting brigade surgeon of the second corps, first division, second brigade, at camp R. A. Alger, Falls Church, Va.; house surgeon in the Boston City Hospital in 1886 and 1887, consulting surgeon to the Woman's Charity Club Hospital, Boston; one of the most prominent practitioners of Boston; died at his home in Allston, November 27, from pneumonia, aged 59.

Alexander E. McDonald, M.D. New York University, New York City, 1870; a member of the American Medical Association, Medical Society of the State of New York, Medical Society of the County of New York, New York Academy of Medicine and New York Psychiatrical Society; president of the American Medico-Psychological Association in 1904; lecturer and professor of medical jurisprudence and psychologic medicine in New York University, and professor emeritus until the time of his death; appointed a member of the staff of the Hospital for Epileptics and Paralytics, Blackwell's Island, in 1870, and a year later made chief of the staff of all the hospitals on Blackwell's Island; in 1874 appointed resident physician of the Manhattan State Hospital, Ward's Island, and a year later made superintendent, which position he retained until failing health compelled his resignation in 1904; died at his residence in New York City, from tuberculosis, after a long illness, December 7, aged 61.

Hiram R. Mills, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1866; a member of the American Medical Association, Michigan State Medical Society and St. Clair County Medical Society; major and surgeon at the Soldiers' Home, Grand Rapids, Mich.; a veteran of the Civil War and thereafter surgeon in the army for three years; for many years a leading practitioner of Port Huron, died at the Soldiers' Home, Grand Rapids, suddenly, from heart disease, November 29, aged 69.

J. Stebbins King, M.D. Medical College of Ohio, Cincinnati, 1860; a surgeon during the Civil and the Spanish-American Wars; at one time a practitioner in Natchez, Miss., and editor of the Natchez *Courier;* a member of the Medical Society of Central Illinois and the Capitol City Medical Society; for more than thirty years a practitioner of Decatur, Ill., died at the home of his daughter in that city, November 26, from cerebral hemorrhage, after an illness of several months, aged 70.

Samuel R. Watts, M.D. Howard University Medical Department, Washington, D. C., 1872; professor of medical jurisprudence and clinical medicine in his alma mater; formerly president of the Medico-Chirurgical Society of the District of Columbia, attending physician at the Dispensary Clinic, and member of the Medical Visiting staff of the Freedmen's Hospital; died at his home in Washington, D. C., November 28, after an illness of three months, aged 60.

Pedro M. Lusson, M.D. Department of Medicine of the University of Philadelphia, 1864; formerly president of the Santa Clara County Medical Society, and first vice-president of the Medical Society of the State of California in 1894, consulting physician to Santa Clara College, died at his home in San Jose, Cal., from heart disease, November 26, after an illness of six weeks, aged 66.

Melancthon Hogeboom Fisk, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1866; a member of the American Medical Association; a veteran of the Civil War and one of the most prominent physicians of Wauwatosa, Wis., died at his home in that city December 1, from malignant disease of the throat, after a long illness, aged 63.

Charles A. Gause, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1852; a member of the Kansas State Medical Society, and at one time superintendent of the Kansas State Hospital for the Insane, died suddenly at New Sharon, Ia., September 8, from angina pectoris, aged 75.

William A. Lee, M.D. Medical College of Virginia, Richmond, 1870; adjunct professor in his alma mater, where he had been a lecturer for many years; a prominent practitioner of Richmond, died suddenly from cerebral hemorrhage, while returning from a Masonic banquet, November 29, aged 64.

John J. Cook (Years of Practice, Kentueky); a member of the American Medical Association; one of the most prominent physicians of Mason County, Ky., where he had practiced for more than 42 years; died at his home in Wedonia, November 25, from gastritis, aged 58.

Alexander C. Sloan, M.D. Louisville University, Medical Department, 1870; a member of the Navarro County Medical Society and Texas State Medical Association, died at his home in Corsicana, Texas, from pityriasis rubra, November 30, after an illness of four months, aged 63.

William Copeland Philips, M.D. Transylvania University, Lexington, Ky., 1848; secretary of the state of Texas and chief clerk in the state comptroller's office, was found dead in bed at his boarding house in Rocheport, Mo., from senile debility, November 14, aged 83.

Francis Withers Allen (Examination Missouri), for two or three years president of the Macon County Medical Society, founder of Macon College, died at his home in Barryville, near Calleo, Mo., November 14, aged 74. The pallbearers were all members of the county society.

George W. Hubble, M.D. Long Island College Hospital, Brooklyn, N. Y., 1871; a confederate veteran and a member of the board of county supervisors for several years, died at his home near Chilhowie, Va., November 26, after a short illness, aged 62.

John Greer Smith, M.D. Medico-Chirurgical College of Philadelphia, 1898; a member of the American Medical Association; and of the Philadelphia County Medical Society, died at his home in Roxborough, Philadelphia, November 30, from tuberculosis, aged 30.

Glover Crane Arnold, M.D. Bellevue Hospital Medical College, New York City, 1873; a member of the Medical Society of the State of New York and Medical Society of the County of New York, died at his home in New York City, November 30, aged 57.

Charles Wilmot Oleson, M.D. Harvard University Medical School, Boston, 1866; assistant surgeon of the Fourteenth Infantry during the Civil War, a member of the Chicago Medical Society, died at his home in Lombard, Ill., December 1, aged 66.

John Adams Ten Eyck, M.D. Bellevue Hospital Medical College, New York City, 1882; ambulance surgeon in Bellevue Hospital from 1882 to 1883; died at his home in Bridgeport, Conn., from pneumonia, after an illness of 10 days, aged 44.

Charles Gould, M.D. Bellevue Hospital Medical College, New York City, 1888; interne in Bellevue Hospital, after his graduation; died in Bellevue Hospital, November 22, from septicemia, due to a wound of the right hand, aged 46.

William Henry Marean, M.D. New York Medical College, New York City, 1855; surgeon during the Civil War, died at his home in Ocala, Fla., November 23, from typhoid fever, after a prolonged illness, aged 70.

Edward J. McDonough, M.D. New York University, New York City, 1887; died at his home in New York City, November 30, from pulmonary edema, after an illness of four hours, aged 44.

Mary A. Howard, M.D. University of Nebraska, College of Medicine (Homeopathic department), Lincoln, 1885; died at her home in Hastings, Neb., November 24, from cerebral hemorrhage.

Mike M. Paul, M.D. Louisville Medical College, 1897; was shot and instantly killed by a negro whom he was attempting to arrest on order of the sheriff, at Center, Texas, November 17.

Christian F. Bolman, M.D. Medical College of Fort Wayne, Ind., 1881; of Coldwater, Ohio, died suddenly in a theater at Fort Wayne, Ind., from cerebral hemorrhage, December 1, aged 59.

George McIntosh, M.D. Faculty of Medicine of Queen's University, Kingston, Ont., 1904, died at his home in MacDonald's Corners, Ont., October 5, from typhoid fever.

Finley S. Frank, M.D. Starling Medical College, Columbus, Ohio, 1892; died suddenly at his home in North Robinson, Ohio, November 25, from heart disease, aged 53.

William E. Colthar, M.D. Cincinnati College of Medicine and Surgery, 1900; died at his home in Williamsburg, Ohio, November 24, from typhoid fever.

Arthur P. Keith, M.D. Kansas City Medical College, 1901; died at El Reno, Okla., August 14, from typhoid fever, after an illness of four weeks, aged 30.

J. Robert Landers, M.D. Hospital College of Medicine, Louisville, 1885; died at his home in Teheran, Ill., November 9, from acute nephritis, aged 45.

James W. Eberhardt, M.D. Medical College of Georgia, Augusta, 1890; died at his home in Hartwell, Ga., November 20, after a prolonged illness.

Rollin J. Dickinson, M.D. Kansas City (Mo.) Medical College, 1898; died at his home in Kirwin, Kan., November 13, from cancer of the stomach.

A. R. McDaniel, M.D. Jefferson Medical College, Philadelphia, 1845; died at his home in Greensboro, N. C., November 17, after a long illness.

Percy Linwood Tantum, M.D. Jefferson Medical College, Philadelphia, 1886; died at his home in New York City, November 26, aged 45.

William Schmoele, M.D. Jefferson Medical College, Philadelphia, 1866; died suddenly at his home in Portsmouth, Va., aged 60.

Jasper H. Brightwell, M.D. Medical College of Georgia, Augusta, 1860; died at his home in Maxeys, Ga., November 23.

Eugene V. Wharton (examination, Kansas), died suddenly at his home in Yates Center, Kan., from heart disease, November 27.

Book Notices

THE PHYSICIAN'S VISITING LIST FOR 1907. Fifty-sixth Year of its Publication. The Dose-Table herein has been revised in accordance with the new U. S. Pharmacopeia (1906). Flexible Leather. Price, $1.00. Philadelphia: P. Blakiston's Son & Co., 1907.

This neat little visiting list also contains space for addresses of patients and nurses, for obstetric and vaccination engagements, as well as a record for births and deaths. Brief chapters on drug incompatibility and on asphyxia and apnea, the usual list of antidotes for poisons, and a complete dose table assist in making it a very servicable book for the pocket.

PROGRESSIVE MEDICINE, A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences, edited by H. A. Hare, M.D. Vol. II. September, 1906. Paper. Pp. 298. Philadelphia: Lea Brothers & Co., 1906.

The present volume is in keeping with previous issues, giving a review of "Diseases of the Thorax and Its Viscera," etc., by William Ewart of London; "Dermatology and Syphilis," by William S. Gottheil of New York; "Obstetrics," by Richard C. Norris of Philadelphia, and "Diseases of the Nervous System," by William G. Spiller of Philadelphia. The treatment of tuberculosis receives more than its usual share of attention, and the opsonic index is described fully and its advantages and clinical application are set forth. Considerable space is devoted to obstetric surgery and to syphilis. The illustrations are numerous and excellent.

Society Proceedings

COMING MEETING.

American Association of Anatomists, New York City, Dec. 27-29.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.

Meeting held in Boston, Oct. 25, 1906.

DR. HENRY P. WALCOTT in the Chair.

Disinfection—Reasons and Methods.

DR. H. W. HILL, in charge of the Minnesota State Board of Health Laboratory, said that disinfection is literally the destruction of the power to infect, e. g., boiling of instruments before surgical operations; the use of bactericides in infected wounds; the exposure of infected materials to sunlight; the pasteurization of infected milk; the filtration of infected water, etc. Practically in public health circles it means the destruction of the infectiveness of the environment of persons, and is still further usually restricted to terminal disinfection, i. e., the disinfection of the patient's room, or house and its contents, after the patient has left. Disinfection acts by destroying the power to infect and usually by killing the living organisms which cause the infectious disease. Sterilization goes a step further and destroys all the germ life present. If then, disinfection from the public health point of view, narrows itself to the destruction of disease-producing germs after their escape from the body, we must consider how they escape from the body, where they go to, how long they live in their new location, what the chances are of their removal thence to well persons while still capable of producing the disease and how often such transfer actually does take place. Actual cases and not probability or possibility are demanded.

The diseases in which it is possible for the germs to escape, survive and be transferred to well persons are: Typhoid fever, diphtheria, influenza, dysentery, erysipelas, glanders, rabies, actinomycosis, tuberculosis, leprosy, syphilis, soft chancre, gonorrhea, gonorrheal ophthalmia, cerebrospinal meningitis, tonsillitis, pneumonia, cholera, anthrax, plague, smallpox, measles, scarlet fever, whooping cough, tetanus, possibly acute rheumatism and cancer; also septicemia.

The point of exit differs, but chiefly it is the nasopharynx and anus, with occasionally the skin and urine. It is a question whether measles and scarlet fever are infectious from the skin, while there is little doubt of their infectiousness from the nasopharynx.

Of all this list of diseases American practice has finally decided on four where usually disinfection is done: Smallpox, diphtheria, scarlet fever and tuberculosis. Diphtheria and scarlet fever may soon be added to this list of diseases in which transmission is so much more often direct than indirect, that disinfection to prevent the latter is scarcely a factor in reducing their prevalence. The germs of these four diseases escape chiefly from the nasopharynx, e. g., by spitting, coughing, etc., and are deposited in the immediate neighborhood of the patient. Some few go to other parts of the room and others may be carried by the hands to things touched. They remain moist for some time. The masses of mucus dry, but only rarely become powdered, so that they can be air-borne. When dry enough for that the organisms are usually dead. They fall to the floor and are not likely to reach the nose or mouth of a new victim. Scattering is very unlikely, except for the tuberculous patient. Most of these germs die in less than three weeks, especially if exposed to diffuse sunlight. Most of the bacteria in diphtheria, and probably in scarlet fever and smallpox are thrown out early in the disease, and are dead when disinfection is done, and the patient is released from quarantine. In tuberculosis the infection is much greater, therefore it is more important to disinfect after tuberculosis, if a well person is to occupy the room within three weeks, or better, within three months.

Washing with a disinfecting solution is laborious and uncertain. Gases are best. Sulphur dioxid, chlorin, hydrocyanic acid, carbolic acid vapor, are all efficient. Sulphur

and chlorin injure fabrics, hydrocyanic acid is too deadly. Carbolic acid is too expensive. Hence formaldehyd, cheap, innocuous, and efficient is generally used. All act best in moist atmospheres, and especially is this true of formaldehyd. Sufficient gas, sufficiently concentrated, and used for a sufficient length of time is accomplished by devices, mechanical, thermal, chemical and thermo-chemical.

Mechanical: Sprays, by atomizers, as in use in Chicago, or larger sprays used in Philadelphia, or through the key-hole, as in Boston, by steam pressure. Thermal: Range from simplest evaporating pan to complicated devices and auto-chairs. Chemical: Unslaked lime exposed to a formalin solution. Water is absorbed and gas set free, but the air is too dry. Mixing permanganate of potash with formalin. Use the proper proportion and the gas is obtained abundantly and cheaply. This requires about twice as much formalin as some of the other methods, but less apparatus and labor. moisture must be added. Leakage must be checked. Evolution of the gas is rapid, and time enough must be allowed for it to act. These matters under control and the machine or method is of comparatively little importance.

Because these factors have varied the results reported have been so contradictory. Five ounces of formalin with fifteen ounces of water will completely disinfect 1,000 cubic feet of space in two hours. This allows a wide margin for safety. For anthrax, double the amount and time. Public conveyances, sleeping cars, street cars, etc., have germs moist and active and should be as thoroughly and promptly disinfected as the pillows or sheets of a patient.

The Value of Two Consecutive Cultures as a Method of Releasing Diphtheria Patients.

DR. BURT R. RICKARDS, Director of the Bacteriological Laboratory of the Boston Board of Health, said that this rule was adopted in Boston in 1896. It then replaced the single culture for release, which in turn has replaced the previous arbitrary time limit. It acts as a check on the present imperfect bacteriological methods. Especially is this true in laryngeal cases and when due care is not exercised. The bacteriological error is less than the clinical error. The tests in the Boston Board of Health Laboratories show by the results of finding the germs on a second culture when the first was negative, that by the former method from 15 to 34 per cent. would have been discharged, while still capable of infecting others. These late germs are virulent up to the time of their disappearance. Boston requires for release a culture from both nose and throat. If this is negative the second culture is taken by the agent of the Board of Health. This insures greater care and thoroughness.

In 1900 the average duration of a case of diphtheria from the earliest symptoms to the date of the second negative culture was 23.3 days. In 1905 it was 16.8 days. The average duration of the clinical symptoms in Boston is two weeks. Hence, if an arbitrary rule to release only after ten days or two weeks from the disappearance of symptoms is adopted it will be seen that the average case would be kept in quarantine longer than is necessary. Hence, the second negative is better. Probably not 1 per cent. need a third negative. The second should be taken by an agent of the Board of Health, and for cases of long duration, virulence tests should be made.

Methods Employed in Providence, R. I., for Releasing Diphtheria Patients.

DR. C. V. CHAPIN, said that sanitary practice ought to be based on what we know of the origin of disease. Contagious diseases extend not from known cases usually, but from unrecognized ones. Infection is usually by quite direct contact. Formites play but little part in it. Formerly Providence had no stringent restrictive rules. Moderate reduction of cases was only secured. In 1902 the rule was adopted that the warning sign come down ten days after the disappearance of the exudate, as certified by the attending physician. No child in the family may attend school until one month from the beginning of the case, unless two successive negative cultures from both nose and throat have been obtained. Almost all these children come to the health department to have these cultures taken and many are found infected. But the period of isolation is reduced. Formerly 57 per cent. were isolated over three weeks, now only 27 per cent. are isolated beyond this period.

Isolation is now absolute. Judgment must determine how long it is wise to continue it. The rule in the general community would not apply to small communities, public institutions or schools. Here active interference may absolutely control. So. too, it is advisable to be quite sure, by two or even three negative cultures, that a child who has been cared for at considerable expense in a contagious hospital will not carry out germs to the public. The result in Providence has been a decrease in the number of cases, even though disinfection too, has been abandoned, and in September last, for a week the city was free from any reported case of diphtheria. Hence the leniency has had no serious bad effects.

DISCUSSION.

DR. HENRY J. BARNES, stated that to attain in a room high relative humidity, 80-85 per cent., is a different problem in different places. Boston averages about 70 per cent., Denver, 50 per cent. In summer it might be easy, but in winter, steam heated houses are about 30 per cent. and hospital wards as low as 12 per cent. even, it being 8 per cent. dryer than the air in a lumber kiln. Hence the few ounces of water recommended by Dr. Hill which might be ample in summer would have little effect in winter. The little German hydrometer, he said, is accurate within 2 or 3 per cent. It is easily read and should be used in every room to determine whether the necessary 80 per cent. of humidity has been secured.

DR. GARDNER T. SWARTS believes that what is practical and what is safe should be the aim of the health officer. If we take chances and do not disinfect, and no dire results follow, we are satisfying the public and health requirements. If ten days after the disappearance of the membrane, the germs do usually disappear, we are safe in assuming a shorter quarantine.

DR. C. E. A. WINSLOW stated that the danger comes from the fresh germs, chiefly, just as they leave the body. Therefore, concentrate attention on them, whether tubercle, diphtheria or typhoid bacilli. Give pointed instructions. Prevent the scattering of the germs from their source.

DR. JAMES C. COFFEY, stated that Worcester, Mass., a city with 135,000 inhabitants, is just now experiencing an unusual epidemic of diphtheria. It started in August, when the schools were not in session. The type is very infectious, several members of the family being usually affected, but it is not virulent. In the last 100 cases there has not been a death. Immunity is a factor which is quite as important in this matter of the spread of disease as is disinfection. Ordinary quarantine is pretty much a farce. Any member of a family in which diphtheria exists, who deals with the public, clerk, letter carrier, motorman, conductor, teacher, etc., should be required to leave that house or have the patient taken away.

DR. BURT R. RICKARDS said that antitoxin returned to the Massachusetts Board of Health Laboratory because it is slightly clouded is used for serum in which to grow the diphtheria bacilli. Hence it has no effect to kill the germs themselves. Infected persons may be compared to criminals. Patients: Those in prison. Infected well persons: Criminals at large, liable to do damage at any time. Companions of criminals: Exposed well persons. They may become criminal or they may not. Infected well persons do not generally have virulent germs. Methyl alcohol, he said, is only a wasteful method of producing formaldehyd.

DR. FRANCIS P. DENNY suggested that every diphtheria patient where the germs persisted more than four weeks by cultures be put "on probation" and allowed freedom, except school children, and those whose occupation brings them in contact with many others.

DR. CLARENCE P. HOLDEN urged the necessity of searching for the unrecognized case which so often precedes the one under treatment and may be still infectious and at liberty. These are apt to be untreated nasal diphtheria cases. The same holds true of scarlet fever. It is not enough to recognize a case and isolate it.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held Oct. 17, 1906.

The President, DR. GEORGE W. WEBSTER, in the Chair.

Hemorrhage from the Stump Following Appendectomy.

DR. WILLIAM HESSERT read a paper with this title, which appears in this issue of THE JOURNAL.

DISCUSSION.

DR. M. L. HARRIS said that it is now more than ten years since Dawbarn first presented the pursestring suture and the invagination of the stump method. It was so simple that he adopted it at once and has used it ever since. About that time the late Dr. Fenger said he had never used the method because he was afraid of hemorrhage from the end of the appendix. Dr. Harris had never seen hemorrhage from the stump up to that time, but bearing in mind Dr. Fenger's remark, he began to pay more attention to the appendix after ligating the stump. He noticed that after the ordinary ligation of the appendicular artery, then cutting the appendix, in a few cases bleeding continued from the side of the appendix, especially from the mesenteriolum, and he found that this hemorrhage in the majority of cases came from the small branch of the appendicular artery which was given off near the base of the appendix, and followed closely in the wall of the appendix, so that when the appendicular artery was ligated this branch failed to be included in the ligature. He described a modified technic which includes this branch in the ligature.

DR. A. J. OCHSNER said that for a number of years he regularly ligated the appendix, and then inverted it without crushing, but for nearly seven years he has followed the Dawbarn method and the Harris loop, and in about 1 per cent. of all cases he has passed a ligature about the crushed stump, selecting such cases as appeared to be unsafe. During this period he has removed over 2,000 appendices without a single case of postoperative hemorrhage from the stump.

DR. E. WYLLYS ANDREWS reported three cases in which hemorrhage occurred after the patients had left the operating table. In two a fatal hemorrhage followed from a vessel at or near the lumen of the appendix at about the time of the removal of the first gauze packing. The third case occurred in the practice of a fellow-practitioner. In this there was a perforation of the appendix, although the patient had not been operated on. He was treated by the Ochsner method, and while the temperature was improving he suddenly collapsed and died. Autopsy disclosed perforation near the base of the appendix.

DR. D. W. GRAHAM has had two cases of severe hemorrhage following appendectomy, and nearly lost both patients. In one the hemorrhage was from the stump; in the other from the rupture of an omental vein, which was not detected until the operation was finished.

DR. A. E. HALSTEAD has had one case of severe hemorrhage after appendectomy, and believes the hemorrhage came from a vein and not from the stump. He emphasized the point that in all cases the ligature should be passed around the stump and the surgeon should not trust to crushing of the stump in controlling hemorrhage.

A Few Disorders of Sleep.

DR. HUGH T. PATRICK first spoke of what has been called nocturnal palsy, night numbness, sleep numbness, waking numbness and acroparesthesia nocturna. The individual wakens in the night with one or more extremities numb, tingling and more or less paralyzed. This paralysis may be complete, but is of short duration. After some minutes of rubbing, slapping, shaking, etc., normal sensation and motion return and the individual is able to go to sleep again. When the trouble is hemiplegic in distribution it very closely simulates an apoplectic attack without loss of consciousness, and may seriously frighten the individual as well as give considerable concern to the medical attendant.

The causes of this disorder, approximately in the order of their importance, are neurasthenia and general nervousness, malnutrition and general debility, the menopause, rheumatism, cold and wet, anemia arteriosclerosis, hysteria, tobacco, gastrointestinal disorders, gout, Bright's disease and diabetes. After the meeting Dr. Hartung informed the author that he had known of one case caused by pregnancy.

The next disorder was what the author called painful awakenings. In this disorder the individual wakens suddenly with a feeling of intense apprehension or panic, as if something dreadful were about to happen or had just happened. There is apt to be palpitation, tachypnea, generalized tremor, or more frequently a sensation of trembling without visible tremor, sometimes cold perspiration and a feeling of great prostration. As nearly as may be ascertained these attacks have no relation to nightmare or bad dreams. They occur principally in the course of functional nervous disease, and although most distressing, not to say alarming, are entirely harmless, and nearly always disappear with successful treatment of the general nervous condition. However, sometimes heart disease, Bright's disease, arteriosclerosis or adenoids stand in a causal relation to the disorder.

The author then described different types of what he called indormescent shocks, because they occur just as the patient is falling asleep or immediately after. They may be divided into motor and sensory, although sometimes the two are combined in the same patient or in the same shock. In a very mild degree the motor shock is familiar to everyone, simply consisting of a sharp muscular start or jerk about the time one is falling asleep. The starts in this degree may be called physiologic, as nearly every person has experienced them, but they sometimes reach an intensity which makes them distinctly pathologic. In such a case the sudden muscular contraction may be so violent and so generalized as literally to throw the individual into the air and turn him over in bed, and in some cases these jerks may be repeated ten or twenty times before he finally passes into a sound sleep.

The sensory shocks are very apt to be related to the special senses. A typical case was that of a neurasthenic who was wakened by what seemed to be the discharge of a pistol inside of his head. He was conscious of a tremendous crash, like an explosion, and at the same time felt conscious of a vivid flash of light. He sprang from the bed, was terribly frightened, sat up the rest of the night, and for weeks thereafter retired with great timidity lest there should be a recurrence of the phenomenon. Another patient, a middle-aged woman, had a sensation of having received a violent blow on the head and she felt certain that some one had struck such a blow. In intense agony she waited for the second, which she felt would follow instantly, but after a time realized that it was purely a sensation and that she had received no bodily harm. Still another patient was suddenly awakened by what seemed to be a great flash of light, and another had a sudden sensation in the epigastrium as if he had received a violent blow in that region. A neurasthenic and hypochondriacal gentleman, past middle age, was several times wakened by a sound which he likened to a violent and sudden grinding together of two stones, the intensity of the sensation being sufficient to constitute a real pain. Other instances were related, in all of which the disturbance was sufficient to concern, if not greatly alarm, the patient, but the author had never known this particular disturbance to be a symptom of organic disease. The disorder of sleep always disappeared with the disappearance of the nervousness and a return to good general health.

Retention of Stomach Contents.

DR. ALBERT H. BURR described the conditions under which the stomach contents are retained beyond the period of normal digestion. He referred to the symptoms of retention, and spoke of the advantages of passing contents through the normal channel. The method of accomplishing it is by position on the right side to favor gravitation of the contents to the pyloric end of the stomach. He emphasized the importance of making strong rhythmic contractions of the abdominal muscles on the stomach to stimulate peristalsis, and finally firm fixation of the diaphragm by deep sustained inhalations, while strong abdominal contractions are made. This voluntary reversed emesis is not difficult to learn. He described a series of daily bedside abdominal gymnastics for deep active massage of all contained viscera, especially to promote the activity of the lymph channels and the lymph circulation for therapeutic and prophylactic effects.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulæ and outlines of treatment are answered in these columns.]

Bronchial Asthma.

In considering the treatment of bronchial asthma Melvin, in *Denver Med. Times*, states that nearly all cases of bronchial asthma prove to be symptomatic of some reflex origin, most frequently nasal.

In those cases in which a thorough search reveals no definite origin Melvin states that they may be divided into three classes:

1. Those patients who are not benefited by treatment.

2. Those who have been improved so far as the number and severity of the paroxysms are concerned, but are all chronic cases.

3. Those who could be called cured, all of whom had not been affected more than a few months or not over three years.

He states that the regulation of the diet and attention to metabolism were the first and important features in every case. He advises a strict limitation of tea, coffee, meat and sugars along with most careful regulation of the digestive functions. The next important factor in the treatment is the administration of alkalies. They should be given before meals and at bedtime, and continued over a long period of time.

He advises also sodium salicylate in 10-grain doses after meals as second in value of medicines. Syrup of hydriodic acid taken half an hour before meals is of marked benefit in chronic cases and given over a long period.

For the relief of the paroxysm he considers the regular A. C. E. mixture as of value; one or two teaspoonfuls being given by inhalation. He regards the stimulant and relaxing effect of this mixture as of more benefit and much safer than the simple chloroform inhalation. It may be handled by the patient himself by placing some absorbent cotton saturated with the mixture in the bottom of a small bottle and inhaling the fumes through the nose whenever the paroxysm comes on. He states that while the possibility of forming the drug habit must be kept in mind he has never observed such an instance. He prefers this method to the use of a hypodermic injection of morphin and atropin.

He states that only occasionally has he seen much benefit from the use of glonoin or amyl nitrite. Pilocarpin was tried with adverse results. In some of the chronic cases the stramonium and potassium nitrate inhalations gave good results.

A. R. Edwards recommends the following combination in the treatment of bronchial asthma:

℞.	Ext. grindeliæ robustæ fl.	f℥i	30
	Tinct. lobeliæ		
	Tinct. belladonnæ, āā	f℥ii	8
	Potassii iodidi	℥iss	6
	Syrupi	f℥i	30
	Aquæ q. s. ad	f℥iv	120

M. Sig.: One teaspoonful four times a day.

H. C. Brown recommends the following:

℞.	Sodii arsenatis	gr. iss	09
	Aquæ	f℥x	300

M. Sig.: One tablespoonful before breakfast and supper.

Or:

℞.	Antimonii et potassii tart.	gr. i	06
	Potassii chloratis	gr. v	30
	Aquæ q. s.	f℥iv	120

M. Sig.: One teaspoonful every two hours.

He further states that no treatment of bronchial asthma is complete without proper attention to the general condition of the general system regulation, the diet and avoidance of all irritating substances.

Rover, in the same periodical, states that there are two indications to be met in the treatment of bronchial asthma: 1. To relieve the paroxysms. 2. To prevent the recurrence of expiratory dyspnea.

To meet the first indication he states that a full dose of morphin hypodermically, grain ¼ to ½ (015-.03), or even a grain (.06), serves the best purpose. The latter amount should be given, however, in broken doses 15 minutes apart, with or without small doses of strychnia. In this connection he states that the morphin habit is not so easily acquired as if given for the relief of chronic pain. [We must suggest, however, that it is not advisable to use this amount of morphin except in extraordinary circumstances, and then only with great care.—ED.] Because of the fact that the sputum is scant and raised with difficulty he recommends the following:

℞.	Ammon. carb.		
	Potassii iodidi, āā	℥ii	8
	Tinct. belladonnæ	f℥i	4
	Syr. pruni virg. q. s. ad	f℥iii	90

M. Sig.: One teaspoonful in water every four hours.

To prevent the recurrence of the paroxysm he advises:

1. Proper attention to the general health. 2. Removal of all causative factors. 3. A change of climate, even a change of location, although the patient may remain in the city.

As to medicinal preparations he advises potassium iodid, Lugol's solution, arsenic, syrup of hydriodic acid, cod-liver oil and tonics.

Mixtures for Infants (Continued).

Mistura hematoxyli composita:

℞.	Ext. hematoxyli	gr. i	06
	Vini ipecacuanhæ	m. i	06
	Tinct. opii	m. 1/6	01
	Misturæ cretæ	f℥i	4

M. Sig.: To be given at one dose.

Mistura hydrargyri perchloridi:

℞.	Sol. hydrarg. chloridi B. P.	m. i	06
	Aquæ dest.	f℥i	4

M. Sig.: To be given at one dose.

Mistura iodi composita:

℞.	Glycerini phenol		
	Tinct. iodi, āā	m. 1/3	02
	Aquæ q. s. ad	f℥i	4

M. Sig.: To be given at one dose.

Mistura ipecacuanhæ:

℞.	Vini ipecacuanhæ	m. i	06
	Glycerini	m. x	65
	Aquæ	f℥i	4

M. Sig.: To be given at one dose.

Mistura ipecacuanhæ ammoniatæ et belladonnæ:

℞.	Tinct. belladonnæ		
	Tinct. scillæ, āā	m. i	06
	Ammonii carb.	gr. 1/5	012
	Vini ipecac.	m. i	06
	Aquæ	f℥i	4

M. Sig.: To be given at one dose.

Mistura ipecacuanhæ cum ammonia:

℞.	Ammon. carb.		
	Potass. bicarb., āā	gr. ss	03
	Vini ipecac.	m. i	06
	Syr. tolutani	m. v	30
	Aquæ cari q. s. ad	f℥i	4

M. Sig.: To be given at one dose.

Mistura naphthalini:

℞.	Naphthalini	gr. ¼	015
	Syrupi	m. x	65
	Mucil. tragacanthæ q. s.		
	Aquæ cari q. s. ad	f℥i	4

M. Sig.: To be given at one dose.

Mistura olei morrhuæ:

℞.	Olei morrhuæ		
	Glycerini		
	Solutio calcis, āā	f℥i	4

M. Sig.: To be given according to the age of the patient.

Mistura olei morrhuæ cum ferro:

℞.	Olei morrhuæ	m. xx	1 30
	Mucil. acaciæ	gr. ii	12
	Ferri tartratis	gr. ¼	015
	Aquæ cassiæ q. s. ad	f℥i	4

M. Sig.: To be given at one dose.

Mistura olei ricini:

℞.	Olei ricini	f℥i	4
	Tinct. opii	m. 1/6	01
	Vini ipecacuanhæ	m. i	06

M. Sig.: To be given at one dose.

Mistura potassii bromidi:

℞ Potassii bromidi.....gr. i |06
Syr. aurantii.....m. x |65
Aquæ q. s. ad.....f3i 4|
M. Sig.: To be given at one dose.

Mistura potassii bromidi cum chloral hydratis:

℞ Potassii bromidi.....gr. i |06
Chloralis hydratis.....gr. ss |03
Syrupi .....m. x |65
Aquæ .....f3i 4|
M. Sig.: To be given at one dose.

Mistura potassii citratis:

℞ Potassii citratis.....gr. ii |12
Aquæ .....f3i 4|
M. Sig.: To be given at one dose.

Mistura potassii iodidi:

℞ Potassii iodidi.....gr. 1/3 |02
Spts. ammon. arom.....m. i |06
Aquæ .....f3i 4|
M. Sig.: To be given at one dose.

Mistura quininæ:

℞ Quininæ sulphatis.....gr. ¼ |015
Acidi sulphurici dil.....m. ss |03
Syrupi .....m. x |65
Aquæ q. s. ad.....f3i 4|
M. Sig.: To be given at one dose.

Mistura quininæ cum ferro:

℞ Quin. sulphatis.....gr. ¼ |015
Sol. ferri chloridi.....m. ss |03
Glycerini .....m. v |30
Aquæ q. s. ad.....f3i 4|
M. Sig.: To be given at one dose.

Mistura rhei cum soda:

℞ Pulv. rhei |
Sodii bicarb., āā.....gr. ss |03
Syrupi zingiberis.....m. ii |12
Aquæ q. s. ad.....f3i 4|
M. Sig.: To be given at one dose.

Mistura salina:

℞ Sol. ammon. acetatis.....m. xv 1|
Potassii citratis.....gr. i |06
Aquæ camphoræ q. s. ad.....f3i 4|
M. Sig.: To be given at one dose.

Medicolegal

SOME LEGISLATION OF 1906.

Prohibits Adulterating or Misbranding Drugs and Food.

No. 463 of the Laws of Georgia of 1906, approved August 21, 1906, provides that it shall be unlawful for any person to manufacture, sell or offer for sale within the state of Georgia any article of food, drugs, medicines, or liquors, which is adulterated or misbranded, or which contains any poisonous or deleterious substance within the meaning of this act. Examinations of specimens of foods and drugs shall be made by the state chemist, or under his direction and supervision, for the purpose of determining whether such articles are adulterated or misbranded. The term "drug" shall include all medicines and preparations recognized in the United States Pharmacopeia, or National Formulary, for internal or external use, and any substance or mixture of substances intended to be used for th cure, mitigation, or prevention of disease of either man or other animals. The term "food" shall include all articles used for food, drink, confectionery or condiment by man or other animals, whether simple, mixed or compound.

In the case of drugs an article shall be deemed to be adulterated: First. If, when a drug is sold under or by a name recognized in the United States Pharmacopeia or National Formulary, it differs from the standard of strength, quality or purity, as determined by the test laid down in the United States Pharmacopeia or National Formulary official at the time of investigation; provided, tha no drug defined in the United States Pharmacopeia or National Formulary shall be deemed to be adulterated under this provision if the standard of strength, quality, or purity be plainly stated on the bottle, box, or other container thereof, although the standard may differ from that determined by the test laid down in the United States Pharmacopeia or National Formulary. Second. If its strength or purity fall below the professed standard or quality under which it is sold.

In the case of confectionery, an article shall be deemed to be adulterated if it contain terra-alba, barytes, talc, chrome yellow, or other mineral substance or poisonous color or flavor, or other ingredient deleterious or detrimental to health, or any vinous, malt or spirituous liquor, or compound or narcotic drug.

In the case of food, an article shall be deemed to be adulterated, among other things, if it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health; provided, that when in preparation of food products for shipment they are preserved by any external application applied in such manner that the preservative is necessarily removed mechanically, or by maceration in water, or otherwise, and directions for the removal of said preservative shall be printed on the covering or package, the provisions of this act shall be construed as applying only when said products are ready for consumption. An article shall be deemed to be adulterated if the package, vessel or bottle containing it shall be of such a composition, or carry any attachment made of such a composition or metal or alloy, as will be acted on in the ordinary course of use by the contents of the package, vessel or bottle in such a way as to produce an injurious, deleterious or poisonous compound.

The term "misbranded" shall apply to all drugs, or articles of food, or articles which enter int the composition of food, the package or label of which shall bear any statement, design or device regarding such articles or the ingredients or substances contained therein which shall be false or misleading in any particular, and to any food or drug product which is falsely branded as to the state or county in which it is manufactured or produced.

In the case of drugs an article shall also be deemed to be misbranded: First. If it be an imitation of, or offered for sale under the name of, another article. Second. If the contents of the package as originally put up shall have been removed, in whole or in part, and other contents shall have been placed in such package, or if the package fail to bear a statement on the label in as conspicuous letters as is or may be prescribed by the United States law or rules and regulations of the quantity or proportion of any alcohol, morphin, opium, cocain, heroin, alpha or beta eucain, chloroform, cannabis indica, chloral hydrate, or acetanilid, or any derivative or preparation of any such substances contained therein; provided, that nothing contained in this paragraph shall be construed to apply to the filling of written prescriptions, furnished by regular licensed practicing physicians, and kept on file by druggists as required by law, or as to such preparations as are specified and recognized by the United States Pharmacopeia or National Formulary.

Restricts Child Labor in Factories.

No. 339 of the Laws of Georgia of 1906 provides that from the approval of this act, August 1, 1906, no child under ten years of age shall be employed or allowed to labor in or about any factory or manufacturing establishment within the state under any circumstances. After January 1, 1907, no child under twelve years of age shall be so employed, or allowed to labor, unless such child be an orphan and has no other means of support, or unless a widowed mother or an aged or disabled father is dependent on the labor of such child. After January 1, 1908, no child under fourteen years of age shall be employed or allowed to labor in or about any factory or manufacturing establishment within the state between the hours of 7 p. m. and 6 a. m. Besides, after said last date, certain educational qualifications are demanded up to eighteen years of age.

Provides for Material for Treatment of Hydrophobia.

No. 546 of the Laws of Georgia of 1906 empowers and directs the State Board of Health, as soon as practicable, to

arrange for the preparation and manufacture in its laboratory at the capitol, material necessary for the treatment and prevention of hydrophobia according to the method of Pasteur, and to keep constantly on hand the necessary material sufficient in quantity to meet the requirements that any exigency may demand, and to distribute the same free of cost to physicians and surgeons over the state for the treatment of such of their patients as have been bitten by an animal suffering with rabies.

Authorizes Appointing Policeman Health Officer.

No. 63 of the Acts of South Carolina of 1906 amends section 1098 of the code of that state, relating to "organization of board of health," by adding thereto the proviso: "Provided, that in cities and towns of more than 5,000 inhabitants and less than 10,000, the mayor or intendant of such city or town shall be authorized and empowered to designate and detail, under such rules as may be prescribed by the city or town council, one of the policemen of such city or town to perform the duties of health officer in such city or town."

Gives Board of Health to Unincorporated Towns.

No. 82 of the Acts of South Carolina of 1906 provides that the executive committee of the State Board of Health shall have power, and it shall be their duty, to appoint local boards of health in all unincorporated towns and villages, where the population of any of said towns and villages is not less than 100 inhabitants, which local boards shall consist of seven members, one of whom shall be a regularly licensed practicing physician, one the nearest magistrate, and five laymen; provided, however, that no such board of health shall be appointed until one-fourth of the qualified electors of such unincorporated towns and villages shall have, in writing, asked for the appointment thereof.

Such local boards of health shall have power, and it shall be their duty, to make and enforce all needful rules and regulations to prevent the introduction and spread of infectious or contagious diseases by the regulation of intercourse with infectious places, by the arrest, separation and treatment of infected persons, and persons who shall have been exposed to any contagious or infectious disease, and by abating and removing all nuisances which they shall deem prejudicial to the public health, to enforce vaccination, to mark infected houses or places, or to prescribe rules for the construction and maintenance of house-drains, waste pipes, soil pipes and cesspools, and make all such other regulations as they shall deem necessary for the preservation of the public health. They shall also have power, in case of the prevalence of any contagious or infectious disease within any of the said towns or villages, to establish one or more hospitals and quarantine stations, and to make provisions and regulations for the management of the same.

For the purpose of executing and the enforcement of any of the orders or rules prescribed by said boards, the said magistrate shall be invested with power and authority equal to that of a police officer in municipalities.

Provides for Analyses in Supposed Poisoning Cases.

No. 85 of the Acts of South Carolina of 1906 provides that it shall be the duty of the coroners in that state, and of any other persons acting as coroner, whenever on the holding of any inquest there is reason to believe that the deceased came to his death by means of poison, to carefully prepare the body or parts of the body, as directed by the authorities of Clemson Agricultural and Mechanical College, and to carefully send the same promptly to the authorities of said college. It shall be the duty of the authorities of said college to have made by the proper department thereof a chemical analysis of all bodies, or parts of bodies, as the case may be, so sent to them by any coroner, or other person acting as coroner in the state, and to report the result fully to the coroner, or acting coroner, with all convenient speed. It shall be the duty of the chemist who conducted or performed said analysis, or of a competent assistant who was present aiding therein, on notice from any solicitor, to attend the trial of any case involving the issue as to the cause of death in question; and for such attendance and testimony in the case he shall be entitled to mileage, going and returning, and five dollars per day for the actual number of days of such attendance, to be paid for by witnesses' pay certificate issued in the usual way of such.

Current Medical Literature

AMERICAN.

Those marked with an asterisk (*) are abstracted below.

Medical Record, New York.

December 1.

1 *Treatment of Diffuse Suppurative Peritonitis Following Appendicitis. F. Torek, New York.
2 Hospitals Connected with Medical Schools. D. B. St. John Roosa, New York.
3 More Ether; Less Chloroform. J. E. Lumbard, New York.
4 *An Important Factor in the Causation and Treatment of Many So-Called Functional Disorders. C. G. Leo-Wolf, Niagara Falls, N. Y.
5 *Quinin Fever. A. L. Goodman, New York.
6 Perforation of the Soft Palate, Due to Tertiary Syphilis; Staphylorrhaphy. H. F. L. Ziegel, New York.

1. **Treatment of Diffuse Suppurative Peritonitis Following Appendicitis.**—Torek has operated in 18 cases of diffuse suppurative peritonitis. All patients operated on not later than 70 hours after the onset of the diffuse peritonitis recovered. Two patients who were operated on on the fourth day also recovered. Torek's method of operating differs in various particulars from that described by other surgeons. In all but four cases the incision was made in the median line. In almost all the cases the exudate extended all the way over to the left. The incision described reaches from the pubes to about two inches above the umbilicus. Torek has never excised the navel. The peritoneum is subjected to as little traumatism as possible. After lavage, the abdomen is completely closed without drainage. There are patients in whom the general systemic affection has so far progressed that the removal of infectious material from the peritoneal cavity can not save them. Operation in these cases should be undertaken as soon as the diagnosis has been made.

4. **Causation and Treatment of Functional Disorders.**—Wolf claims that phenomena of hysteria are repeatedly due to eyestrain. The same is true concerning neurasthenia. This is a disorder common to men with sedentary habits and women with too much money and leisure. Wolf says he has never seen a case of nervous prostration in a washerwoman or of neurasthenia in a track hand. Other disturbances that he has observed to be caused by eyestrain are chorea, neuralgia, colds, asthma, anemia, polyuria and dysuria, dysmenorrhea, and backache and torticollis.

5. **Quinin Fever.**—Goodman reports the case of a patient who some years before she was seen by the writer had been treated with quinin for attacks of malaria. On examination the spleen was found to be enlarged and somewhat painful. Six decigrams of quinin sulphate were ordered to be taken once daily. A few hours later the temperature had risen 4.2 degrees. After giving further doses of the drug, it was concluded that the fever was due to the administration of the quinin. As soon as the patient was put on a mixture of ergotin and piper nigrum, her fever failed to appear and she made an uninterrupted recovery. Goodman concludes that the phenomenon here described is due to some chemical changes in the blood acting on the heat dissipating apparatus in persons who have, or who have had, malaria.

New York Medical Journal.

December 1.

7 *Exophthalmic Goiter from the Standpoint of Serum Therapy. J. Ewing, New York.
8 A Clinician's Observations of Opsonic Therapy. C. D. Aaron, Detroit.
9 Medical Societies of New York County, with Especial Reference to the Need of Better Organization of the Medical Profession. F. M. Crandall, New York.
10 *Etiology of Cholelithiasis; Bacteriologic Study of One Hundred and Two Calculi. J. Funke, Philadelphia.
11 *Tuberculosis of the Kidney in an Infant. J. L. Morse, Boston.
12 Liberal Diet in Typhoid Fever. M. Manges, New York.
13 *Use of Arsenic in Pneumonia. T. F. J. Dunn, Fordham, N. Y.

14 A Reply to Dr. E. N. S. Ringueberg's Article on a Plea for More Catholic and Broader Views on Ophthalmology. F. W. Bates, Hamilton, Ontario.
15 *Case of Tying Wire Perforating the Appendix. A. Denenholz, New York.

7. **Exophthalmic Goiter.**—Ewing considers briefly the theories of the nature of Graves' disease, the pathologic anatomy of the thyroid gland, and the general pathology of the disorder.

10. **Bacteriology of Biliary Calculi.**—Of the 102 calculi examined by Funke but 31 gave rise to growths in the bouillon; 71 inoculations remained sterile. Only now and then were bacteria found in spreads, and occasionally, perhaps in three calculi, were bacteria found in the spreads when no growth from the same calculus developed in the bouillon. From the infected tubes the colon bacillus was isolated 11 times in pure culture. The *Bacillus typhosus* was found once in pure culture and never associated. The following organisms were isolated once; occasionally they were in pure culture, occasionally associated: *Bacillus limbatus, Bacillus gasoformans, Bacterium oxygenes, Bacillus Fricdländer, Bacillus lactis erythrogenes, Micrococcus tenacatis,* and the *Bacillus subtilis.* The last named organism was found in pure culture in eight of ten stones taken from the same case. The *Sarcinæ luteum* was found in four calculi always associated with one or more organisms; the *Micrococcus cereus albus* was isolated twice. One calculus yielded a bacillus which could not be identified; it resembled the *Bacillus brookeri* very closely.

11. **Tuberculosis of Kidney in Infant.**—Morse's patient was only 3 years of age. He was breast fed for the first four weeks. Then he was given a home modification of milk from untested cows, pasteurized at 155 F. Later he was put on unpasteurized milk. Attention was attracted to the kidneys when the baby was seven months old. Tubercle bacilli were found in the urine. He was at once given the fresh-air treatment and is now a large, strong, healthy 3-year-old boy. The case suggests several important points in diagnosis. First, the importance of examination of urine in all obscure illnesses in infancy, especially if associated with fever; second, the necessity of considering tuberculosis of the urinary tract in differential diagnosis, even at this age. It also emphasizes the usefulness of fresh air in the treatment of tuberculosis, and shows that even young infants can not only bear, but profit by the outdoor treatment, day and night, even in a cold climate.

13. **Arsenic in Pneumonia.**—In the 10 cases reported by Dunn the medication consisted essentially in the use of large doses of Fowler's solution of arsenic. In some cases nothing else was employed, and it was found that enormous doses of the drug were tolerated in a most surprising manner. Five minims, every two or three hours, were given in these cases for several days without the slightest evidence, either proximate or remote, of arsenical poisoning. In fact, it seemed that these patients showed the same tolerance of arsenic that malarial patients show of quinin, or that syphilitics do of mercury or iodid. Aside from the absence of untoward symptoms there seemed to be positive results in the control of the toxemic symptoms of pneumonia. In several of the cases there was a decided break in the temperature about 48 hours after the beginning of medication.

15. **Tying Wire Perforating Appendix.**—The interesting features of Denenholz' case are the peculiar etiology and the existence of the high polynuclear count as indicative of abscess at the time of admission. The source of the trouble is traced to the entry of a piece of wire, such as is used in making artificial flowers. Undoubtedly in this instance, while cutting off an end of the wire, it alighted on some article of food which the boy ate, and became incorporated with it in its descent in the alimentary tract. It gradually worked its way down into the lumen of the appendix, setting up an inflammatory condition in its efforts to escape, at last perforating the appendix wall.

Boston Medical and Surgical Journal.

November 29.

16 Major Symptoms of Hysteria. P. Janet, Paris, France.
17 *Examination of the Throat in Chronic Systemic Infections. J. L. Goodale, Boston.
18 *Some Fundamentals in Hydrotherapy. C. C. Nicola, Melrose, Mass.

17. **Examination of Throat in Chronic Systemic Infections.**—The object of Goodale's paper is to present suggestions for examination of the throat which he has found of value in conditions of chronic systemic infection. He reports nine cases of cervical lymphadenitis which demonstrate first that tuberculous cervical adenitis may exist in association with the presence of tubercle bacilli in the tonsils, with or without visible changes in these structures, and is not necessarily affected by the removal of the tonsils. Second, that a form of cervical adenitis occurs, accompanied by distinct enlargement and subacute or chronic inflammation of the tonsils, and disappears after their excision. In the first instance, it appears reasonable to assume that a penetration of tubercle bacilli through the tonsils into the lymph glands has occurred; in the second, that an absorption of irritating material generated in the tonsils is taking place from them into the adjacent lymph nodes. In the latter instance, the removal of the focus of toxin production is followed by immediate relief. The examination of a large number of cases of infectious arthritis, with regard to the conditions of the throat, has demonstrated to Goodale the existence of pathologic alterations in the tonsil characterized in general by retention of lacunar detritus, with or without hypertrophy of the organ. Since, however, inspection and careful clinical examination may fail to disclose deep-seated collections of detritus, communicating by circuitous passages with the open air, Goodale deems it wise, if other points of infection can be eliminated, to extirpate the tonsils in the most thorough manner, thus replacing a tissue of diminished resistance by a stout barrier of compact structure without nook or recess to harbor a pathogenic parasite.

18. **Fundamentals in Hydrotherapy.**—Nicola reviews briefly some of the fundamental principles which should be a guide in making applications of hydrotherapy. From his own experience, covering a number of years in an institution where hydrotherapy is largely employed, as well as from reports from similar institutions elsewhere, he is fully convinced that hydrotherapy, while not a panacea, has a very wide range of applicability. Of course, he says, it will find its greatest efficiency in well-equipped institutions where especially constructed apparatus and appliances can be utilized. Nevertheless, he has attempted in this paper to point out more especially the simple fundamental principles which can be utilized in many ways in every household, and to call attention to such special treatments as would be of most service to the general practitioner.

Lancet Clinic, Cincinnati.

December 1.

19 *Future of the Medical Profession. J. H. Carstens, Detroit, Mich.
20 Gonococcus Vaginitis in Children. B. K. Rachford, Cincinnati.
21 X-Ray in Epithelioma, Lupus and Tertiary Syphilis—Photocystoscopy in Genitourinary Neurasthenia. M. L. Heidingsfeld, Cincinnati.

19.—See abstract in THE JOURNAL, Nov. 17, 1906, page 1674.

St. Louis Medical Review.

November 24.

22 Some Causes of Inefficiency in Medical Practice. J. B. Roberts, Philadelphia.
23 Pathologic and Clinical Diagnosis of Sarcoma. (To be continued.) M. G. Seelig, St. Louis.

Annals of Surgery, Philadelphia.

November.

24 *Dislocation of Vertebræ in Lower Cervical Region, Followed by Symptoms of Complete Severance of the Spinal Cord; Laminectomy; Later Partial Restoration of Function. W. C. Krauss, Buffalo, N. Y.
25 *The Omentum and Its Functions. G. K. Dickinson, Jersey City, N. J.
26 *Cirrhosis of the Stomach. J. G. Sheldon, Kansas City, Mo.
27 *Rupture of the Intestine. W. W. Golden, Elkins, W. Va.
28 *Case of Intussusception Subjected to Operation. A. M. Cartledge and J. B. Bullitt, Louisville, Ky.
29 Angulation at the Sigmoid. G. P. LaRoque, Richmond, Va.
30 *Hernia into the Ileocolic Fossa. E. R. Secord, Brantford, Ontario.
31 *Trans-Uretero-Urethral Anastomosis. N. W. Sharpe, St. Louis.

24. **Dislocation of Vertebræ in Lower Cervical Region.**—Krauss' patient, a healthy, athletic young man, after diving into shallow water, became semi-unconscious and devoid of power over his arms and legs. A masseur, who was present when he was removed from the water, asserted that when he

then examined him there was a dislocation of the spine in the cervical region, which he reduced on the spot by manipulation. Four hours later there existed total paralysis of both legs; the arms and hands were partially paralyzed. Speech, eyes, pupils and facial muscles were not affected; the head was slightly retracted, but moved in all directions, with some pain, however. A careful examination of the spinal column did not reveal any fractures or dislocations. There was some tenderness about the spinous process of the fifth cervical vertebra, also some indefinite pain about the third thoracic spine. The patellar, ankle and plantar reflexes were absent. Marked priapism was present; catheterization was necessary. The patient was able to flex the arms but not to extend them.

Eighteen days after the injury Dr. Park exposed the spine between the fourth cervical and first dorsal, finding the sixth cervical apparently somewhat loosened and abnormally movable, but without fracture. He removed the posterior arch of the sixth and exposed the spinal canal. Outside the dura nothing appeared abnormal. On puncturing the dura a large amount of cerebrospinal fluid escaped with a jet, showing that intraspinal tension had been very much increased. After opening the dura for one inch, the cord itself showed no particular evidence of laceration or violent disturbance, but seemed to have shrunk; it was flattened so that it did not nearly fill the canal. There was a small remnant of old clot within the dura. On lifting the cord with an artery needle, it seemed flattened, ribbon-like, shrunken and to lack in bulk. The dura was closed with catgut and the entire wound with buried and superficial drainage. The wound healed kindly. Patient remained in the hospital about four weeks and went home, showing some improvement, able to move the feet a little, and with considerable improvement in sensation. In the hands and arms not much change appeared.

Krauss says that this case is a notable one. First, because the injury undoubtedly was a dislocation of the sixth cervical vertebra; second, that a crushed or pinched condition of the cord followed; third, that a regeneration of the spinal cord followed the operation, accompanied by a descending degeneration of the cord; fourth, that a remarkable recovery of function took place, although the operation occurred 18 days after the receipt of the injury.

25. **Omentum and Its Functions.**—Dickinson summarizes his paper as follows: 1. The numerous blood vessels and lax tissues of the omentum allow of storage of blood when the general arterial tension is high. 2. By venous anastomosis through adhesions, local congestion may be relieved. 3. Through its large surface freely exposed to surrounding parts in motion, it becomes a rapid absorber of fluids by the blood stream. 4. By the lymph stream it is a free carrier of white blood corpuscles, encapsulating solid particles. 5. Through its cohesive tendency, apertures in the abdomen into which the omentum has been forced by intra-abdominal pressure become more or less completely closed. 6. Through its readiness to lymph formation and local proliferation, it becomes attached to infected parts, which are walled off, subsequently to be absorbed by phagocytic action; the peritoneal cavity being thereby protected. 7. The majority of the phagocytes extruded into the peritoneum for its protection come through the omentum, largely from the general circulation, but in part from the tissues therein existing; subsequently to be attached to the surface of this tissue, taken into the lymph stream, and subjected to the cytolytic influences existing there. 8. Lack of development of the omentum, or loss through operation, renders one less resistant to peritoneal invasion. 9. Hemolymph glands of the splenic type existing in its base supplement the spleen if the latter be removed or its functions interfered with.

26. **Cirrhosis of Stomach.**—Sheldon's patient has remained well three and one-half years after gastroenterostomy was performed, which, he thinks, strongly suggests that the process involving this markedly contracted, thickened and indurated stomach, was not carcinomatous.

27. **Rupture of Intestine.**—Golden reports two cases. He says that, given a case in which an injury to the abdomen occurred which is liable to produce rupture of the intestine, and the abdominal wall is found rigid and the patient suffering from pain in that region, one should not hesitate to operate even in the absence of all other symptoms.

28. **Intussusception Subjected to Operation.**—Cartledge and Bullitt report a case of intussusception occurring in a boy aged 8 years. The colon was incised for about three inches, exposing the intussusception, which was drawn out and excised, the tumor mass being about six inches in length. The bleeding mesenteric vessels were caught in sutures and tied, and a running stitch united the cut colon to the ileum. The stump was allowed to drop back into the lumen of the colon and the longitudinal incision into the descending colon was closed by continuous suture. As it was certain that the excision was at a point several inches removed from where the intussusceptum entered the intussuscipiens, it was deemed advisable to draw a presenting coil of the distended small intestine into the lower angle of the wound, to fix it there, and to open it as the concluding step of the operation. No effort was made to reach the point where the intussusceptum entered the intussusceptiens, where amputation would preferably have been made.

The child reacted surprisingly well from the operation. The discharge from the fistula was profuse. At the end of five days, there being evidences of infection of the wound margins, the stitches were removed, whereupon the wound edges separated widely, both surfaces showing a purulent infiltration. It was necessary to pack and strap the wound to prevent the prolapse of the intestines. Fortunately the intestine was already adherent to the peritoneum at the margin of the wound. The wound gradually cleaned out and healed up satisfactorily, only the fistulous opening in the small intestine remaining. As the subsequent events proved, the fistula was established high up in the course of the small intestine. Later on, attempting to separate the small intestines from the abdominal wall, the adhesions were found to be very dense and the intestine was torn in several places, rendering it so ragged that a resection of about four inches had to be made, with end-to-end anastomosis by suture. After this operation convalescence was uneventful.

30. **Hernia into Ileocolic Fossa.**—Secord reports a case of frank, distinct, and undoubted hernia of the cecum, appendix, and about four inches each of the terminal ileum and ascending colon, into the ileocolic fossa in a man aged 40, with strangulation and obstruction caused by the anterior vascular fold. Laparotomy was performed, the obstruction was relieved, and recovery finally ensued.

31. **Trans-Uretero-Ureteral Anastomosis.**—Sharpe believes that his experiments have proved that an intraperitoneal trans-uretero-ureteral anastomosis is an anatomic possibility. The blood supply of the ureter is ample, of which probably the peri-ureteral arterial plexus is the most essential factor. Operative procedures which conserve the blood supply, in particular the peri-ureteral arterial plexus, are ordinarily satisfactory. When the integrity of the ureter is impaired, restitutional rather than destructive surgical measures should be followed. Of these restitutional measures the various methods of uretero-ureteral anastomosis are recommended. Intraperitoneal trans-uretero-ureteral anastomosis is also a physiologic success. Retroperitoneal trans-uretero-ureteral anastomosis, whether anterior or posterior to the aorta and vena cava, is an anatomic possibility. (Further experimentation is essential in order to prove that it is a physiologic success.) The route followed is the shortest path between the two ureters. The technical difficulties are not excessive. Sharpe says that it is highly probable that this method impairs the ureteric blood supply less than any other method in vogue.

Archives of Pediatrics, New York.

November.

32 Some Phases of the Feeding Problem. L. E. Holt, New York.
33 *Adherent Pericardium with Ascites. S. W. Sappington and C. F. Rau, Philadelphia.
34 A Study of Proteids in Infant Feeding, with Special Reference to Whey Proteids. F. M. Frey, Montreal, Canada.
35 Résumé of Work Done in the Section on Pediatrics at 1906 Meeting of A. M. A. E. E. Graham, Philadelphia.

33. **Adherent Pericardium with Ascites.**—Sappington and Rau report two cases. The first case was a 2-year-old child

of a tuberculous mother who died after an eight months' illness following an attack of measles. The predominant symptom was ascites, persistent and recurrent after tapping until three weeks before death, when all fluid disappeared. Signs directly referable to the heart, pericardium or liver were entirely absent or indefinite. At autopsy there was found an adherent pericardium with intervening saccalations filled with milky, purulent fluid. There was no valvular or mural involvement of the heart; no mediastinitis; no pleuritis; no peritonitis; no perihepatitis, or cirrhosis of the liver. There was a nutmeg liver. Microscopically, the pericarditis was found to be tuberculous in nature. The liver exhibited marked passive congestion with some central atrophy, but no cirrhosis. A few isolated tuberculous foci were found throughout the body except in the spleen, where typical tubercles were numerous. There was in no sense, however, a general miliary tuberculosis.

The second patient, a 10-year-old boy with a negative family history and a personal history of typhoid fever two years previous, was seen after two weeks' indefinite illness. He presented the signs of pericarditis with large effusions. In six weeks the effusion had disappeared. Ascites, without other dropsy, appeared two weeks later. Slight enlargement of the liver was discovered previous to the ascites, but not subsequently. Cyanosis and dyspnea were present; and an intercurrent attack of pleurisy occurred. Just before death the dropsy became general. The duration of the illness was six months. At autopsy there was found an obliterated and thickened pericardium, marked mediastinitis and adhesive pleuritis (right). There was ascites, but no peritonitis local or general. There was no perihepatitis. The liver was enlarged by a very marked passive congestion. Grossly, all evidence of tuberculosis was wanting. Microscopically, the pericarditis was distinctly tuberculous and a supposedly normal mediastinal gland was found to be infiltrated with tubercles.

Journal of the Michigan State Medical Society, Detroit.

November.

36 Consideration of Some of the Diseases of the Mammary Gland. T. A. McGraw, Detroit.
37 Some Diseases of the Kidneys and Appendages. W. T. Dodge, Big Rapids.
38 Border Line Cases of Neurasthenia. C. W. Hitchcock, Detroit.
39 Prevention of Venereal Disease. F. McD. Harkin, Marquette.
40 Chloroform Quantity versus Cardiac Quality. A. Williams, Grand Rapids.
41 *Ethyl Chlorid Anesthesia. J. G. R. Manwaring, Flint.

41. Ethyl-Chlorid Anesthesia.—Manwaring's experience covers 104 cases. With the exception of four given with the old Ware inhaler the anesthesias were all successful in that unconsciousness was produced. The duration of the anesthesia varied from one minute to 55 minutes, which time was that of a hemorrhoid case. In those cases in which deep anesthesia was induced, nausea was as prevalent as would have been the case with chloroform. When it was given only to the primary stages, as for most operations, there was none or at most but little. Of these patients 15 were babies, several of the operations being circumcisions of from 10 to 20 minutes' duration; 35 patients were children, 50 were adults, and 4 were quite aged. The only alarming results encountered were in one case, that of an old man with pronounced arteriosclerosis and subject to asthmatic attacks. He showed a marked cyanosis with unconsciousness for about one-half hour, which cleared up under a hypodermic injection of 1/75 gr. of atropin sulphate. The apparatus used is an ordinary soft rubber ice-bag, which is easily replaced and readily turned inside out for cleaning. The whole is much less clumsy than most other models when in use, and is accessible throughout, which is necessary for hygienic reasons. The inflatable face-piece adapts itself to any face, whether babe or adult, as is essential for successful results.

The Ohio State Medical Journal, Columbus.

November 15.

42 *Normal Saline Solution in Abdominal Operations. W. H. Humiston, Cleveland.
43 Rôle of the Mosquito in the Etiology of Fevers. J. C. Larkin, Hillsboro.
44 Inheritance a Factor in Disease. J. M. Howell, Dayton.
45 Removal of an Open Safety Pin from the Esophagus. F. L. Stillman, Columbus.
46 *Final Results from the Lorenz Operation for the Bloodless Reduction of Congenital Hip Dislocation. W. G. Stern, Cleveland.
47 Case of Hemorrhage into the Vitreous. B. L. Millikin, Cleveland.

42. Normal Salt Solution.—Humiston claims that the use of salt solution does not increase, but unquestionably minimizes, the dangers of pyogenic infection. In addition to the reduction of mortality, the convalescence of the patient is rendered infinitely more comfortable and satisfactory through the reduction of thirst, the increase in the urinary excretion, and the minimizing of vesical irritation.

46. Lorenz Operation.—Stern says that his experience with the Lorenz operation has been the most gratifying of any that he has had in the practice of orthopedic surgery. His failures to reduce the dislocation have all been in patients too old and too well-developed to permit of such an operation being successful. Among 2,593 hips successfully operated on since 1900 by various operators there were 1,084 or 41.76 per cent. anatomic replacements; 187 or 7.22 per cent. functional results; 1,038 or 39.98 per cent. good or fair functional results divided among anterior transpositions, subspinal positions or lateral appositions; 314 or 12.10 per cent. reported bad results. Of untoward results and accidents but a small number are reported since 1900. In all there have been 2,407 or 88.96 per cent. of improved functional results; 314 or 12.10 per cent. of total failures. (The discrepancy is due to the incompleteness of the reports of the majority of the writers). In many instances individual operators have obtained far better results and show much better the actual state of affairs as regards this operation.

California State Journal of Medicine, San Francisco.

September.

48 *Systematic Treatment of Chronic Urethritis. H. Somers, San Francisco.
49 *Report of Twenty-five Cases of Tuberculosis Treated with Intravenous Injections of Koch's Tuberculin. M. Rothschild, San Francisco.
50 Compulsory Registration and Fumigation, the Most Important of all Prophylactic Measures in the Prevention of Pulmonary Tuberculosis. G. H. Kress, Los Angeles.
51 Résumé of Work of Sanitation Performed by the San Francisco Board of Health, from April 18, 1906, to Date. W. C. Hassler, San Francisco.
52 Urology. M. Krotoszyner, San Francisco.
53 *Subordination of Medical Journals to Proprietary Interests. J. H. Salisbury, Chicago.
54 Hernia of the Bladder, Incarcerated in the Femoral Canal. C. G. Levison, San Francisco.
55 Miscarriage and Its Treatment. W. F. Burnett, Eureka, Nev.

48. Systematic Treatment of Chronic Urethritis.—Somers believes that the Janet method is excellent for its cleansing power; its ability to clear the canal of large quantities of pus, to get the tissues in a more subdued condition free to a great extent of the infective inflammation, but feels that it has not the virtue of producing an absorption of the inflammatory infiltration which is the ultimate cause of the chronic discharge.

49. Tuberculosis Treated with Intravenous Injections of Koch's Tuberculin.—Rothschild presents a report of a number of cases of tuberculosis treated with intravenous injections of Koch's tuberculin. In all cases of tuberculosis which he has treated in the last two or three years, the effect of this method has been very encouraging. Rothschild says that in comparing the intravenous injections of tuberculin with hypodermic injections, it can be asserted that the much more rapid and stronger reaction of the intravenous injections bear a relationship to the good results obtained. The reaction of the hypodermic injection is a great deal slower, and the results have not been nearly so encouraging as in the cases which were treated by intravenous injections. So far, Rothschild has not observed any relapses in any of his patients. In some of his cases he went up to two centigrams, and that is the largest dose he ever used. In patients whom he could afterward send to the country for a few months, the treatment was usually continued for about one or two months after the disappearance of symptoms and clearing up of the lungs. In patients who could not go to the country, the injections were kept up for about three months longer. All other known means of combating tuberculosis were also taken advantage of, such as diet and hygiene, and the use of proper drugs.

53.—See THE JOURNAL, May 5, 1906, page 1337.

California State Journal of Medicine, San Francisco.

October.

56 *Spasmodic Torticollis. P. C. H. Pahl, Los Angeles.
57 Spiral Organisms in Relation to Syphilis. T. G. Davis, Los Angeles.
58 Technic and Staining of Treponema Pallidum. E. L. Leonard, Los Angeles.
59 Subnormal Accommodation as a Manifestation of Hysteria. F. B. Eaton, San Francisco.
60 Notes on Hydrocyanic Acid Poisoning. T. C. McCleave, Berkeley.
61 Surgical Anesthesia with Hydro-bromate of Hyoscin and Morphin. E. Lanphear, St. Louis, Mo.

56. **Spasmodic Torticollis.**—In sixty-eight cases collected from the literature, Pahl found that men and women were equally affected; it occurred most frequently between the ages of 20 and 30, and that the right side was affected twice as often as the left. Out of sixty-eight cases, twenty-five were females, twenty-four were males; and, in nineteen cases, the sex was not given. Between the ages of 10 and 20, there were three cases; between 20 and 30, nineteen cases; between 30 and 40, eight cases; between 40 and 50, thirteen cases; and between 50 and 60, five cases. By various treatments employed 28 patients recovered, 17 were improved and 11 unimproved. In 12 cases the treatment was not given.

Medical Herald, St. Joseph, Mo.

November.

62 Cause and Possible Prevention of Gastric and Intestinal Hemorrhages Following Operations for Appendicitis, Hernia and All Other Operative Procedures Involving the Blood Supply of the Omentum and Viscera. J. E. Summers, Jr., Omaha.
63 The County Sanatorium for the Treatment of Pulmonary Tuberculosis. R. C. Moore, Omaha.
64 A Second Case of Dual Personality. S. G. Burnett, Kansas City, Mo.
65 *An Unusual Case of Appendicitis. F. S. Clinton, Tulsa, I. T.
66 Treatment of Nocturnal Enuresis. G. F. Butler, Chicago.
67 Different Stages of Epilepsy and Its Distinct Pathology. M. R. Hughes, St. Louis, Mo.

65. **An Unusual Case of Appendicitis.**—On opening the abdomen, no anterior adhesions were found by Clinton, and when the appendix, which was about an inch long, was brought into view, there was considerable injection about the proximal end, but the distal end had sloughed off, leaving a patulous and irregular stump at the point of separation. There was no suppuration and after the usual appendectomy the incision was enlarged, and it was ascertained that the gangrenous end had been wrapped up in a piece of omentum and attached to the lower and posterior portion of the cecum. It was necessary carefully to dissect this necrotic mass, about 2½ by 3½ inches in size, from the cecum and posterior abdominal wall. The surface was wiped clean and dry with sponges wrung from hot sterile normal salt solution and a stab wound made in the loin, through which a tube surrounded with gauze and covered with gutta-percha tissue was introduced. A similar one was introduced anteriorly and the abdominal wall was closed about it with through and through silkworm-gut sutures. The lower tube was removed on the fifth day, the upper on the seventh; both being replaced by light gauze wicks after wiping out with sterile gauze. This was continued until complete recovery, seven months after operation.

Canadian Practitioner and Review, Toronto.

November.

68 The Opsonic Theory. A. E. Wright, London.
69 A Statistical Report of the Results of Operations in Sarcoma of the Nose by Methods Generally Adopted, with a Plea for the More Extended Use of the Electro-Cautery in Suitable Cases. J. Price-Brown, Toronto.
70 Occurrence of Babinski's Sign in Normal People During Sleep. R. D. Rudolf, Toronto.

Cleveland Medical Journal.

November.

71 Some Benefits Derived from Medical Libraries. A. Jacobi, New York.
72 Typhoid Fever Statistics. W. C. Abbott, Chicago.

Central States Medical Monitor, Indianapolis.

October.

73 Unusual Case of Eye Strain. S. C. Norris, Anderson, Ind.
74 Complicated Case of Typhoid Fever and Autopsy. S. E. Earp, Indianapolis.
75 Dropped Kidney and Its Causal Relation to Other Pathologic Conditions. J. W. Crismond, Anderson.
76 Practical Anesthesia. J. W. Wiltshire, Bloomington.
77 Hyperemesis, Syphilitic in Origin, with Spontaneous Recovery. P. H. Coble, Indianapolis.
78 Genitourinary Axioms. N. E. Aronstam, Detroit, Mich.

The American Journal of Urology, New York.

November.

79 Two Cases of Gonorrheal Invasion of the Kidney and Renal Pelvis. A. Ravogli, Cincinnati.
80 Movable Right Kidney the Most Common Cause of Chronic Appendicitis in Women. W. P. Manton, Detroit.
81 Rupture of the Urethra. F. J. Cotton, Boston.
82 Renal Lavage in Pyelitis and Certain Forms of Nephritis. F. M. Johnson, Boston.
83 Prolapse of the Kidney from the Gynecologic Point of View. A. H. Goelet, New York.
84 Renal Calculus and Gynecologic Conditions Simulating Ureteral Disease. E. Garceau, Boston.
85 Explosive Rupture of the Testicle from Trauma. F. J. Cotton, Boston.

Iowa Medical Journal, Des Moines.

November 15.

86 Internal Use of Water in the Prevention and Cure of Disease. J. F. Herrick, Ottumwa.
87 Ichthyol and Its Therapeutic Value. E. T. Kegel, Walcott.
88 Section of Obstetrics and Gynecology. J. E. Conn, Ida Grove.
89 Case of Chorioepithelioma Malignum. P. E. Sawyer, Sioux City.
90 Case of Postpartum Hemorrhage. J. W. Findlay, Sac City.
91 Obstetrics—the Dark and Bright Side. A. Kessler, Carroll.
92 President's Address Before the Cedar County Medical Society. C. G. Stookey, Mechanicsville.
93 Case of Acute Hydramnios Treated by Tapping. J. H. Maynard, Adair.
94 Modified Milk, the Percentage Plan. L. W. Littig, Iowa City.

Archives of Otology, New Rochelle, N. Y.

October.

95 Points in the Diagnosis of the Complications of Temporal Bone Disease Based on a Study of 135 Fatal Cases. A. L. Whitehead, Leeds, England.
96 Case of Hysterical Mastoid Tenderness and Pain, without Functional Disturbance. H. C. Langworthy, Dubuque, Iowa.
97 Primary Cavernous Sinus Thrombosis Secondary to Osteomyelitis of the Petrous Pyramid. A. Knapp, New York City.
98 Nature of Otosclerosis in the Light of Heredity. O. Koerner, Rostock.
99 Theory of Sound Conduction. G. Boenninghaus, Breslau.
100 Changes in the Eye Grounds in Otitic Diseases of the Brain, the Cerebral Membranes and the Sinuses. Takabatake, Nagasaki, Japan.
101 Occurrence and Absence of Crossed Paralyses and Disturbances of Speech in Otitic Suppurations of the Brain and Meninges. Takabatake, Nagasaki, Japan.
102 Etiology and Pathology of Mastoid Empyema Complicating Acute Purulent Otitis Media. A. Scheibe, Munich.
103 Operative Treatment of Purulent Meningitis. V. Hinsberg, Breslau.

Columbus Medical Journal.

November.

104 Duty of the Physician in Regard to Tuberculosis. C. O. Probst, Columbus.
105 International Congress of Tuberculosis, Paris, 1905. H. B. Jacobs, Baltimore, Md.
106 *Results of Operative Treatment of Varicose Veins of the Leg by the Methods of Trendelenburg and Schede. R. T. Miller, Jr., Baltimore.
107 Inflammation. J. U. Barnhill, Columbus.

106.—See abstract in THE JOURNAL, Sept. 29, 1906, page 1057.

American Practitioner and News, Louisville, Ky.

November.

108 Treatment of Gallstones. W. H. Wathen, Louisville.
109 Postoperative Deaths with no Apparent Lesion. E. S. Allen, Louisville.

Vermont Medical Monthly, Burlington.

November 15.

110 Treatment of Cardiovascular Disease. E. LeFevre, New York City.
111 Treatment of Pneumococcic Infection of the Lung. F. C. Ligouri, Barre, Vt.
112 Tetanus with Special Reference to Fourth-of-July Injuries. C. A. Pease, Burlington.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

November 17.

1 *Operative Treatment of Ulcer of the Stomach and its Chief Complications. A. W. M. Robson.
2 *Operations on the Lower Part of the Common Bile Duct. B. G. A. Moynihan.
3 Self-Restraint in Surgery. B. Hall.
4 *Suprapubic Lithotomy with Enucleation of the Prostate in an Aged Patient, Recovery. H. Littlewood.
5 *Treatment of Deviations of the Nasal Septum. St. C. Thomson, J. O. Roe.
6 *Id. G. R. McDonagh.
7 Id. O. T. Freer.
8 *Exostosis of the Frontal Sinus, and a Skiagraph of the Same. H. E. Jones and T. Holland.
9 Headache; Pathologic Conditions of Middle Turbinal a Causal Factor. H. Smurthwaite.
10 Some Unusual Cases of Frontal Sinus Suppuration. P. G. Goldsmith.
11 Certain Factors in the Diagnosis and Treatment of Suppurative Lesions in the Nasal Accessory Sinuses. H. Tilley.

12 Anatomy of the Accessory Sinuses of the Nose. H. W. Loeb.
13 Sklagraphy as an Aid in the Diagnosis and Treatment of Diseases of the Accessory Sinuses of the Nose. C. G. Coakley.
14 Two Cases of Abductor Paralysis. G. L. Richards.
15 Indications for the Ligation of the Internal Jugular Vein in Otitic Pyemia. H. E. Jones and J. F. McKernon.
16 Pathogenic Influence of Aural Lesions in Systemic Disease. S. Mac. Smith.
17 To what Extent is it Advisable to Adopt Conservative Methods in the Treatment of Aural Diseases? G. Bacon.
18 Value of the Blood Clot as a Primary Dressing in Mastoid Operations. C. J. Blake.
19 Use of Cold Wire Snare in the Removal of Hypertrophied Tonsils. A. G. Bryant.

1. **Operative Treatment of Ulcer of Stomach.**—Of 112 posterior gastroenterostomies done by Robson for ulcer or its complications, including hemorrhage and hour-glass contraction, 110 patients recovered, thus giving an operative mortality of 1.7 per cent. Out of the 110 recoveries, 101 apparently resulted in cure. He says that in cases of perforation it is important that, when the patient's condition will permit of it, the question of the performance of a gastroenterostomy should be seriously considered at the same time that the perforating gastric ulcer is closed. Robson has operated in 4 cases of acute hematemesis during the continuance of the bleeding. All the patients recovered and remain well. In 2 of these cases numerous bleeding points were ligatured *en masse* and gastroenterostomy was done; in 2 gastroenterostomy alone was performed. He also operated between the attacks on 22 patients suffering from hematemesis due to ulcer; in all a gastroenterostomy was performed, with recovery from operation in 21. In 1 case death occurred at the end of a week from exhaustion. Of 7 cases in which he performed posterior gastroenterostomy for hour-glass contraction all the patients recovered, and 5 are well at the present time, from three to six years later; 1 died of cancer of the sigmoid flexure of the colon four years and 1 of cancer of the rectum one year after operation. Of 10 cases in which he performed simple gastroplasty all the patients recovered, and 6 are known to be in good health at the present time, from three to six years later; 1 was well a year after, but can not be traced; 1 required gastroenterostomy two years later for ulcer of the pylorus; 1 was well for four years, had recurrence of ulceration, and died of hematemesis; and 1 after five years has had some gastric pain, but has not needed medical attendance.

Robson does not advise operation in ordinary acute gastric ulcer, the medical treatment of which, he says, should be much more careful and more prolonged than was formerly considered necessary. Nor does he advise operation in chronic ulcer before medical treatment has had a fair trial; but he thinks it is unfair to patients to advise a continuance of general treatment for chronic or relapsing ulcer until serious complications supervene, when by timely surgical treatment many of them can be prevented. In perforating ulcer, in chronic or relapsing hemorrhages, in pyloric obstruction or other mechanical causes leading to dilatation, medical treatment is as inadequate and useless as is operative treatment in gastric neuroses and other functional diseases, and to continue it beyond the period in which it can benefit, is as unscientific and unwise as it is to operate and to expect good results in improper cases.

2. **Operations on Lower Part of Common Bile Duct.**—Moynihan reports 6 cases, one of which was fatal, and describes the operations which may be employed to remove stones from the various divisions of the common duct.

4. **Suprapubic Lithotomy with Enucleation of Prostate in Aged Patient.**—Littlewood removed a vesical calculus weighing 2 1/2 ounces and a prostate weighing over 3 ounces from a man aged 90. The patient made an excellent recovery and was comfortable in every way. Death from uremic coma occurred more than 2 years afterward.

5. **Treatment of Septal Deviations.**—Roe sounds a note of warning. He says that the enthusiasm for the operation of submucous resection is very likely to cause the operator to overlook this danger of so weakening the septum as to cause flattening of the anterior portion of the nose. While this liability is disclaimed by many operators, it is nevertheless true, that this result is liable to take place; and in children, in whom the development of the nose is incomplete, these developmental centers should not be removed.

6. **Id.**—McDonagh states that other things being equal, a patient is better to be in possession of the natural supports of his septum—that is, the cartilage and bone; if any plan can be devised short of removing these supports, and if any simpler or less radical operation will suffice, that should be performed. Also he does not think it judicious to advocate the complete resection operation for septal deviations, or to recommend that more of the cartilage or bone should be removed than is absolutely necessary to attain the object for which the operation is undertaken.

8. **Exostosis of Frontal Sinus.**—The patient in this case, a married woman, aged 35, had been operated on fifteen years previously. The principal orbital projection was then removed, with marked relief to the orbital symptoms. The patient consulted Jones because of severe pain, obstruction of the right nostril, and gradual protrusion of the right eyeball. The radiograph gave most valuable information as to the position and extent of the exostosis. A curved incision was made from the middle of the right eyebrow to the right ala nasi. The expanded and thinned covering of bone was clipped off, and, the pedicle of the growth attached to the posterosuperior wall of the frontal sinus having been divided, the whole growth was removed with comparative ease by means of a strong pair of forceps. The growth measured 2 1/2 inches in length and 1 1/4 inches in breadth. The wound healed by first intention.

The Lancet, London.

November 17.

20 History of Clinical Medicine in the British Islands. N. Moore.
21 Longevity and the Means of Attaining It. L. Brunton.
22 *Bacteriology of Aseptic Wounds. L. S. Dudgeon and P. W. G. Sargent.
23 *Delayed Chloroform Poisoning. E. D. Telford and J. L. Falconer.
24 *Contributions to the Orthopedic Armamentarium. E. M. Little.
25 Chronic Intussusception with Complete Inversion of the Vermiform Appendix. J. W. Struthers.
26 *The Increased Mortality in England and Wales from Kidney Diseases, with Special Reference to Boron Preservatives as a Factor Therein. B. F. Giles.
27 Malaria in Greece. R. Ross.

22. **Bacteriology of Aseptic Wounds.**—The experiments of Dudgeon and Sargent included an examination of Petri dishes exposed at the time of operation; of the piece of skin cut from the edge of the wound at the conclusions of the operation; of the suture removed at intervals varying from twenty-four hours to six days after operation; of the exudate at the time of removal of the suture; and of a case of suppuration.

23. **Delayed Chloroform Poisoning.**—Telford and Falconer present the results of a clinical study of this subject and report three cases occurring in children. The occurrence of these cases prompted them to carry out a series of observations on the postanesthetic condition of children. Of 143 patients examined, 17 contained diacetic acid in the urine and 30 showed the presence of acetone. Of the 143 patients, 33 showed some focus of sepsis, and of these 12 proved to have diacetic acid and acetone in the urine. These patients with aciduria appeared otherwise in normal health. The examination for albumin and casts was negative throughout. The anesthetics used were: Chloroform by the open method (38 cases); chloroform by the open method introduced by ethyl chlorid (53 cases); ethyl chlorid alone (18 cases); and ether alone (9 cases). In the series as a whole, the examination of the pulse, temperature, and respirations yielded nothing worthy of note. Of the 118 anesthetized cases, vomiting was seen in 34, and in only four of these could it be described as unusual in amount. No case showed either albumin or casts. The results as regards diacetic acid and acetone are worthy of separate mention.

It would appear from these results that (1) chloroform, ether, and ethyl chlorid may produce a temporary aciduria; (2) so far as is shown by the ordinary routine clinical tests this aciduria occurs not invariably but in the vast majority of cases; (3) ethyl chlorid, either when given alone or when used as an introduction to chloroform, does not appear to differ from other anesthetics as regards the postanesthetic

aciduria; (4) there is no relation between the duration of the aciduria and the length of time during which the anesthetic is administered; (5) the acid bodies occur frequently in the urine of patients in apparently normal health and general anesthesia appears to have no special prejudicial action in these cases; and (6) the change of diet involved in preparation for a surgical procedure does not appear to produce aciduria.

24. **Orthopedic Armamentarium.**—Little describes a new osteoclast; an appliance for the treatment of club feet; a bunion spring for the ambulant treatment of hallux valgus when for any reason the radical cure by operation is not practicable; an adjustable spring retractor or dummy assistant, intended to hold the toes apart during small operations, dressings, or examinations, and so save the services of an assistant, and a universal foot splint for the treatment of deformities of that part after operations such as arthrodesis.

26. **Mortality From Kidney Diseases.**—Giles says that whatever the cause of the undisputed increase in the mortality from kidney diseases it must be sought for in some other factor than the use of boron preservatives. No evidence of injurious effects from the properly regulated use of boron compounds has ever been produced.

Medical Press and Circular, London and Dublin.

October 31.

28 Urethral Impediments to the Evacuation of Urine. R. F. Tobin.
29 *Compression Paraplegia. W. B. Warrington.
30 Further Work on the Chemistry of Viola Odorata. H. W. Gadd.
31 Acute Yellow Atrophy of the Liver. F. H. Edgeworth.

November 7.

32 Latent Diseases. Professor Potain.
33 Notes on Family Diseases. (To be continued.) T. K. Monro.
34 The Tuberculous and Their Hygienic Surroundings at Home. D. T. Barry.
35 *Simple Extraction of Senile Cataract by Teale's Method. C. G. Lee.

November 14.

36 Erythema Induratum (Bazin). J. M. Finny.
37 Notes on Family Diseases. T. K. Monro.
38 Inter-Relationship of Cancer, Tubercle and Venereal Diseases and Other Social Calamities. C. B. Keetley.

29. **Compression Paraplegia.**—Warrington reports a case of removal of an endothelioma or hemorrhagic angiosarcoma from the cauda equina. The patient improved considerably and regained the power of walking with the aid of sticks, the knee jerks returned, and the anesthesia greatly diminished. The pain also was very much relieved. Unfortunately, at about the end of three months symptoms began to return, and pain became again very severe. A second operation was thought to offer some slight chance of relief, but on exposing the nerves it was found that the tumor had grown enormously, and was now from two to three inches long. As the condition was obviously incurable, it was considered justifiable to divide a number of the posterior roots. The patient is now completely paralyzed in the lower limbs, but though pain was at first relieved it subsequently returned.

35. **Extraction of Senile Cataract by Teale's Method.**—Lee favors the use of this method in most cases of senile cataract. The knife employed resembles Taylor's cataract knife; it is much deeper in the heel than elsewhere in the blade; it is also thicker in this situation, more or less of a wedge; by virtue of this it retains the aqueous in its passage across the anterior chamber, and also lessens the tendency of the iris to double over the blade, advantages which the narrow knife of Graefe does not possess. The incision is situated altogether in the corneal structure. The point of the knife enters the cornea just within the outer margin at its equator, and emerges at a counter-puncture just within the inner margin of the cornea, at a level about two millimeters above the equator. As soon as the counter-puncture is well accomplished, and the point of the cataract knife has passed out of the cornea to the extent of about four millimeters, the next step is taken. This is the most critical part of the operation. The knife is somewhat rapidly and with a sort of knack turned directly forward so that the blade, which up to this point has been parallel with the iris, comes to a right angle with the back of the cornea. The section is completed by cutting directly forward, this final cutting being vertically through the corneal thickness, absolutely linear, and in position about midway between the horizontal equator and the upper margin of the cornea. The incision thus made is practically a shallow flap, chiefly linear, with a small limb at an obtuse angle, corresponding to the heel of the knife at the outer edge of the cornea, and a still smaller, hardly perceptible limb, corresponding to the point of the knife, at the inner edge of the cornea. At the limbs the knife passes through the cornea obliquely, but in the horizontal linear part. It cuts vertically through the corneal structure.

The Clinical Journal, London.

October 31.

39 *Union of Fractures. A. Bowlby.
40 Diseases of the Abdomen. W. H. Allchin.

November 7.

41 Arterial Sclerosis. W. P. Herringham.
42 Diseases of the Abdomen. W. H. Allchin.
43 Examination and Treatment of Ear Diseases. A. E. Cumberbatch.

November 14.

44 Observations on Gastric Surgery. C. M. Moullin.
45 *Iridocyclitis. J. H. Parsons.
46 Methods of Diagnosis in Skin Diseases. G. N. Meachen.

39. **Union of Fractures.**—Bowlby closes his lecture with the following words: "Do not lightly blame other surgeons for apparently bad results which under the circumstances were perhaps really better than might have been expected."

45. **Iridocyclitis.**—Parsons says that during acute phases energetic local treatment with atropin, hot bathings, and, if necessary, leeches, is indicated. The patient should be kept in bed and submitted to mercurial inunctions or baths which often do good in cases in which there is no evidence of syphilis. Diaphoresis by vapor baths and hypodermic injections of pilocarpin may be tried in intractable cases. During the intervals between exacerbations the pupils should be kept moderately dilated with weak atropin (.05 per cent.) Neutral tinted glasses should be ordered if the light is bright. The patient should have plenty of fresh air, good diet, and tonics. Above all, any source of septic infection must be eradicated.

Bulletin de l'Académie de Médecine, Paris.

47 (Year LXX, No. 36.) *Japanese Soldier's Manual of Hygiene. —Manuel d'hygiène. J. J. Matignon.
48 *Operative Treatment of Cancer of Stomach.—Resections de l'estomac pour cancer. R. Leriche.
49 *Curabilité du cancer en général et du cancer de la langue en particulier. P. Poirier.
50 *Paludisme. Kelsch.
51 (No. 37.) *Vaccination. Committee report.
52 *La tuberculose ganglio-pulmonaire dans l'école parisienne (among Paris school children). Grancher.

47. **Japanese Soldier's Manual of Hygiene.**—Matignon has translated the little pamphlet on hygiene which formed part of the pack of the Japanese soldier during the late war. The soldiers are taught the laws and practices of hygiene as they are trained in the use of the gun.

48. **Operative Treatment of Cancer of the Stomach.**—Leriche has been studying the immediate and remote results of resection of the stomach, as done in Poncet's surgical service, and also reviewing the literature, having thus collected a total of 1,300 cases. His conclusions are very optimistic. The mortality to date of operative treatment of cancer of the stomach is about 20 per cent. and it can frequently be traced to defects in technic. Recurrences develop almost invariably at the site of the former cancer, showing that resection was not extensive enough. The anatomic conditions and arrangement of the glands favor operative cure if two-thirds of the organ at least are removed. Less than this exposes to danger of recurrence.

49. **Curability of Cancer in General and of Cancer of the Tongue in Particular.**—Poirier reiterates that cancer is at first a local affection, and remains local for a length of time varying with the kind of cancer and, perhaps, with the individual. Permanent cures are realized now in from 20 to 40 per cent. of the cases in which an operation is performed, according to the latest statistics presented at the recent International Cancer Congress at Heidelberg. Poirier has operated in 32 cases of cancer of the tongue, always on the principle of total ablation of the connected glands on each side.

In most of the cases the cancers were in an advanced stage and eight of the patients succumbed during or soon after the operation, the mortality thus being 25 per cent. He has cured two patients with cancer in an advanced stage, but when the operation is performed early, recovery is the rule. Eight patients have been permanently cured for 5 years, 4 years, 2 years or a few months, and the ultimate outcome in several cases is not known. With cancer of the tongue, more almost than with cancer in any other location, an early diagnosis is essential for a permanent cure. Any ulceration or induration on the tongue, especially in a syphilitic, should suggest cancer, unless it is explained by some jagged piece of a tooth. Instead of giving a tentative course of mercury, thus wasting precious time, Poirier always excises a scrap of tissue for microscopic examination and operates at once in case of positive findings. As a rule, the cancer is generally preceded by leucoplasia or glossitis, and if these lesions persist, notwithstanding appropriate medical treatment, they should be excised as precursors of cancer, cutting away the patches of leucoplasia if they prove refractory to treatment. Cancer of the tongue is almost exclusively the prerogative of smokers and syphilitics. Among his 32 patients, all were smokers and 27 confessed syphilitic antecedents which were probable also in the 5 others. The irritation from the smoke may localize on the tongue the lesions of syphilis. He adds, "cancer of the tongue is exceptional in women, although women are affected with syphilis in about the same proportion as men, or nearly so." He proposes that cancer of the tongue should henceforth be officially designated as "syphilitic smokers' cancer." In the course of his communication he related what other countries are doing in the line of cancer research, while in France there is no cancer institute. The anti-cancer league founded by Verneuil and Duplay in 1892 died soon after its birth under the blight of public indifference. [As already mentioned in the news columns, Dr. Henri de Rothschild presented a check for $20,000 to Poirier as a nucleus for a fund to erect and to maintain a cancer institute, and other subscriptions are coming in, so that France will probably soon have its campaign against cancer officially organized. The *Lancet* states that in a recent communication on Jensen's mouse tumors, Williams summarized the situation to date as: "The mountain of cancer research has labored, and has brought forth a mouse?"—ED.]

50. **Transmission of Malaria.**—Kelsch presents further arguments to prove that malaria must be transmitted by some other means than by mosquitoes exclusively. Among the facts cited are Kourlow's experience at Tomsk in Siberia where malarial infection is observed during March and April while the temperature is still below the freezing point and no mosquitoes are to be found at that season. Similar observations have been reported from other parts of Siberia. Grawitz has also stated that among the German troops stationed in malarial districts the epidemics of malaria occur in March and April with the maximum in June, and decline during August and September. There are no mosquitoes during the early spring while they abound during the months when the epidemics die out. Plehn writes from Cameroon in Africa that mosquitoes are rare there. Prizes were offered for the anopheles with fines for houses in which specimens were found, but less than two dozen were encountered during a whole year. And yet, he says, there is nowhere throughout the world a more redoubtable focus of malaria than that colony.

51. **Vaccination.**—The committee on vaccination recommended the following resolutions which were adopted by the Académie: Strolling players, peddlers, gipsies, sailors and others constantly changing their residences must be vaccinated and revaccinated with special care, as these nomads are responsible in many instances for the spread of smallpox. The positive or negative result of a vaccination must be inscribed on the certificate. All school children between 6 and 10 must be revaccinated if the results of their preceding vaccination were negative, and again at 14. The vaccinations required by the law at 11 and at 21 must be repeated three times in case of a negative response. To aid in the compiling of statistics physicians must be careful to distinguish between the vaccinations made when previous attempts have failed and those which are really revaccinations.

52. **Glandular Pulmonary Tuberculosis in the Paris Schools.**—Grancher reports the results of examination of 4,226 school children at Paris during the last three years, and also the results of supplying 103 tuberculous children with cod-liver oil and a good dinner at the school. It was found that these latter measures had little effect. The first sign of tuberculosis infection is a change in the inspiration. This change, localized at one of the apices, when it is fixed and permanent, indicates a lesion. The child is generally paler than his mates, thin, coughs a little and gets easily out of breath. Almost always some glands in the neck, axilla or groin will be found enlarged. This change in the inspiration is generally a weaker inspiration, and if it extends throughout the entire lung, evident both from front and rear, it is due to involvement of the intrapulmonary glands with consequent compression of the vessels, nerves and bronchi. The persistence of this symptom speaks for glandular tuberculosis in its first appreciable stage. The second stage has two signs; besides the weaker inspiration of the first stage there is bronchophony, that is, exaggeration of the vocal vibrations. The third stage has the above two signs and also another, a slight tendency to dulness, sub-dulness he calls it. These three stages precede the classic "first period" of tuberculosis, and they offer the best prospects of a cure, especially if the children can be taken away from the city environment and placed in an out-door school. He advises segregating such children for fear of infecting others, as no one can foretell when the sputum may contain bacilli, although free from them at the time of examination.

Revue de Chirurgie, Paris.

Last indexed, page 900.

53 (XXVI, No. 9.) *Les grands kystes de la capsule surrénale. F. Terrier and P. Lecène.

54 *Actinomycose et grossesse (and pregnancy). L. Thévenot.

53. **Large Cysts of the Suprarenal Capsule.**—Terrier and Lecène state that they were able to find only nine cases of this kind on record. They describe a case personally observed, in which a serous cyst, probably of lymphatic origin, had developed in the left suprarenal capsule. As the other suprarenal was sound, there were no signs of Addison's disease. Tumors of this kind have a very slow development, but gradually push up the diaphragm, distending the lower part of the thoracic cavity and finally protruding in front below the costal arch. The neighboring organs are displaced to a remarkable extent, and compression of the abdominal sympathetic is liable to cause severe pains. If the cyst seems to shell out readily after it has been emptied of part of its contents, complete or partial extirpation should be done, but if not, then marsupialization will be found most practicable, that is, to suture the cyst to the lips of the incision. Out of the five patients who were operated on, two were cured and three died. The results will be better when the surgeon recognizes at once this rare variety of cyst, and does not waste further time in exploring the abdominal cavity. Five varieties of cysts are likely to be encountered in the suprarenal capsules, the hydatid, the true glandular cysts, cystadenoma, cystic lymphangioma, and pseudo-cysts or cavities filled with blood or detritus of tissues. The details of the various cases on record are summarized.

54. **Actinomycosis and Pregnancy.**—Thévenot reports three cases and summarizes three others already published. In the majority the patients became infected with actinomycosis during the pregnancy, probably through some erosion in the mouth, or decayed tooth. The lesions were in the neck and ran a torpid course until after delivery, which seemed to stimulate them to great activity. Actinomycosis is an infection to be cured by iodin, internally and externally, general tonic measures and evacuation of suppurating foci.

Semaine Médicale, Paris.

55 (XXVI, No. 45.) Is there a Center for Motor Aphasia?—Le centre de l'aphasie motrice existe-t-il? F. Bernheim.

56 (No. 46.) La contracture ischémique des membres. L. Chelnisse. General Review.

Archiv f. Gynäkologie, Berlin.

Last indexed, page 1600.

57 (LXXX, No. 1.) *Ueber die Enderfolge der Ovariotomie (remote results). A. Glockner (Zweifel's clinic, Leipsic).
58 Zur Kenntnis des Caput succedaneum. Ehrendörfer.
59 Zur Anatomie der Ovarien Neugeborener und Kinder vor der Pubertäts-Zeit (ovaries before puberty). E. Runge.
60 Experimentelle Untersuchungen über den Infections-Weg bei der weiblichen Genital-Tuberculose (route of infection). P. Jung and A. Bennecke.
61 *Klinische und radiologische Betrachtungen über 16 Pubiotomien mit der Nadel. Hocheisen.
62 *Das Verhalten der Nerven in der Substanz des Uterus (behavior of nerves). A. Labhardt.
63 Klinischer Beitrag Verkalkung des Uterus-Myoms (calcification). D. Grünbaum.

57. **Remote Results of Ovariotomy.**—Glockner states that he was able to trace the after history of 500 out of 540 patients in whom the ovaries had been removed at Zweifel's clinic. He adds parenthetically that 1,100 letters had to be written to secure this result, and that he examined anew with the microscope the various tumors preserved at the clinic during the last few years. This material demonstrates, he declares, the absolute non-malignancy of ovarian fibroma, serous cystadenoma and dermoid cystoma. There is no need to remove the second ovary with a growth of this kind as a second operation at need on the other ovary is a remote and comparatively harmless contingency. Glandular cystoma is generally innocent, but recurrences were observed in about 5 per cent. Generalized carcinosis was observed in 1.75 per cent. of the total cases, and autopsy revealed in one case that unrecognized cancer material had evidently been left behind in the stump, and this is probable in the other cases. It is difficult to recognize small cancerous patches in a large, predominantly adenomatous tumor. No recurrence was observed in any of his 10 cases of "pseudopapillary cystoma," but the true papillary cystomas recurred in 11 per cent. of the 19 cases. The frequency of secondary cancer in the ovaries is confirmed by his figures. He has observed a number of cases of mammary cancer in which there was metastasis in the ovaries with all the other organs intact. In one case a carcinoma in the uterus was accompanied by a carcinoma in the ovary, and the patient is still free from recurrence, nearly four years after, which he accepts as evidence that both of the tumors were primary. All the other 11 patients with secondary ovarian carcinoma succumbed soon after to recurrence. He tabulates the statistics of the clinic from various standpoints. Recurrence after ovarian carcinoma was observed in less than one year in 54.5 per cent. (in 37.26 per cent. with uterine carcinoma); less than 2 years in 22.7 per cent. ovarian (in 32.7 per cent. uterine); less than three years in 9.1 per cent. ovarian (in 17.1 per cent. uterine); less than four years in 9.1 per cent. ovarian (in 9.9 per cent. uterine), and in the seventh year in 4.5 per cent. ovarian (after the fourth year in 3.3 per cent. uterine). The uterus had been partially or totally removed in 53.8 per cent. of the cases free from recurrence to date, but only in 36.3 per cent. of the recurring cases. Removal of the uterus enables the glands to be extirpated more thoroughly with cancer of the ovary, and in this line alone does Glockner see any chance for bettering the technic. No recurrence of sarcoma was observed after the first year; the limit for permanent cure with sarcoma might be accepted as after the second year.

61. **Sixteen Pubiotomies With the Needle.**—The needle is inserted from below and skirts the rear of the pubic bone, emerging above in the median line, guided by the finger in the vagina. The experiences related from Bumm's clinic establish the operation as "simple, harmless, brilliant and rich in blessings" for multiparæ with contracted pelves. Its prospects will be still further assured, Hocheisen remarks, if experience confirms the present conviction that the pelvis remains permanently enlarged, that future births occur spontaneously, and that there need be no fear of sinking down and displacement of bladder, vagina and uterus from the changed conditions.

62. **Innervation of Uterus.**—This extensive illustrated monograph describes the history of the subject and the results of much experimental research. Labhardt complains that none of the stains yet in vogue shows adequately the terminals of the nerves in the human or rabbit uterus. No ganglion cells were found in the human or rabbit uterus. The contractions of the uterus occur by the neurogenic route from irritation of the cervical ganglion or by reflex action, by the myogenic route from direct irritation of the musculature.

Archiv f. klinische Chirurgie, Berlin.

Last indexed, page 1232.

64 (LXXIX, No. 4.) *Die Wirkung der japanischen Kriegswaffen im mandschurischen Feldzuge (action of Japanese firearms). F. Schaefer, E. Swenson and E. v. d. Osten-Sacken.
65 *Die Lymphectasie der Leiste und anderen Folgeerscheinungen der Lymphstauung (consequences of stasis of lymph). H. Gross. (Concluded.)
66 *Ueber plastische Anastomosen zwischen Gallenwegen und Magendarmcanal zur Heilung der completen äusseren Gallenfistel (anastomosis between biliary passages and alimentary canal). v. Stubenrauch.
67 Die primären Muskelanglome alse Ursache von Deformitäten. V. Putti.
68 Erfahrungen über die Therapie bei Schussfracturen der Extremitäten (firearm wounds of extremities). F. Colmers.
69 *Behandlung der Trigeminus-Neuralgie mit Perosmium-Säure. Ursachen der Recidive und deren Verhütung. R. Hammerschlag.
70 Ueber Kriegsverletzung der peripherischen Nerven (firearm wounds). Henle.
71 *Radical-Operationen bei Leisten-Hernien (inguinal hernia). A. Brenner.
72 *Ueber Herzschussverletzungen (firearm wounds of heart). R. Göbell (Kiel).
73 Ueber die acute und subacute "Osteomyelitis purulenta" der Wirbelsäule (of spine). M. Donati.
74 Ueber die Todesursache bei acuter Pancreatitis (cause of death). Doberauer.

64. **Effects of Japanese Firearms.**—This important report is dedicated to Kuropatkin and describes extensive personal examination of the wounded Russian soldiers returning from the front. The party of physicians traveled from regiment to regiment and were impressed with the rapidity with which the wounds healed. Nothing like the prompt healing under the modern methods of treatment has ever been witnessed in any previous campaign. The losses among the Russian troops were proportionately no higher than in the Franco-Prussian war of 1870. The proportion of fatally wounded averaged about the same, but the proportion of those soldiers who succumbed later to the effects of wounds is probably smaller than in any previous campaign.

65. **Lymphangiectasia in the Groin.**—This clinical and experimental study of the consequences of congestion of lymph criticises the French conception of "adenolymphocele." This is the fourth part of Gross' long monograph. He attributes the trouble to mere passive dilatation of the parts of the lymphatic system with its inevitable consequences.

66. **Plastic Anastomosis Between Biliary Passages and Gastrointestinal Tract to Cure Bile Fistula.**—The success reported by von Stubenrauch in a case of rebellious external biliary fistula testifies to the efficacy of his technic. For certain reasons cholecystenterostomy was out of the question; the gall bladder was too distant from the stomach to allow of direct union, and the omentum was too voluminous to allow a loop of the intestine to be utilized for the anastomosis. In a second operation adhesions were found so numerous that implantation of the biliary passages in the small intestine was out of the question, while the persistence of the bile fistula, in spite of all measures, was menacing. The only thing to be done was to divert the bile into the digestive tract, and this was accomplished by cutting a flap in the stomach, according to the technic proposed by Depage in 1903. The flap was long and about 3 mm. wide, with the base above. It was sutured over a drain to make a hollow cylinder, which was then sutured to the gall bladder, and the almost perpendicular defect in the stomach was then sutured. The details of the technic are illustrated as worked out on dogs and on the cadaver.

69. **Treatment of Trigeminal Neuralgia with Osmic Acid.**—Hammerschlag has treated nine patients with neuralgia by injection of a 1 per cent. aqueous solution of osmic acid. The fluid was injected into the infraorbital and mental foramina. In eight cases the pain was abolished permanently to date, for an interval of from four months to four years, and the other patient was much improved. The cases were exceptionally severe ones, several operations having been performed in some

instances without permanent relief. In one case recurrence always followed within four months of the operation, while the osmic acid gave relief for eight months. He believes that this treatment, while not specific, yet deserves more consideration than it has yet received. Good results with it have also been reported from Breslau. In conclusion he suggests the possibility of preventing regeneration of a nerve by filling the canal with paraffin after extraction of the nerve, according to Thiersch, and swabbing with osmic acid.

71. **Radical Operation for Inguinal Hernia.**—Brenner describes his experiences with about 2,000 Bassini operations in which he has slightly modified the original technic with excellent results. He uses the cremaster muscle to form the posterior wall of the inguinal canal.

72. **Bullet Wounds of Heart.**—Göbell discusses the treatment and reports a case of bullet wound of heart and lung in which he operated with success.

Deutsches Archiv f. klinische Medizin, Leipsic.

Last indexed, pages 1333 and 1422, and XLVI, page 1570.

75 (LXXXVII, Nos. 1-2.) *Ueber Leber-Degeneration infolge Pankreas-Nekrosen (degeneration of liver). W. Rudolph.
76 Fall von Polymyositis bei akuter Polyarthritis. H. Edenhuizen.
77 *Einfluss der Roentgen-Behandlung auf den Stoffwechsel bei chronischer myeloider Leukämie (x-rays and metabolism). H. Königer.
78 Ueber die Sklerose der Arteria radialis. O. Hallenberger.
79 *Ueber Hydrops chylosus und chyliformis. Sommer.
80 *Phototherapy of Affections Due to Parasites in the Blood.—Ueber Lichtbehandlung blutparasitarer Krankheiten. G. Busck and H. von Tappeiner.
81 Ueber hämoglobinophile Bazillen bei Lngenkrankheiten. K. Klieneberger.
82 *Embolie der Arteria mesenterica superior mit Ausgang in Genesung (terminating in recovery). M. Haegel.
83 Ueber organ-spezifische Präcipitine und ihre Bedeutung. G. Grund.
84 *Deafness Due to Defective Functioning of the Thyroid Gland.—Die dysthyre Schwerhörigkeit. E. Bloch (Freiburg).

75. **Degeneration of Liver from Necrosis of Pancreas.**—Rudolph describes a case in which patches of necrosis were found in the liver and also in the pancreas, the latter evidently being the older process. In another case, similar in every respect except for the absence of icterus, the liver was much congested, but there was no necrosis and the pancreas was also free from necrosis. The possibility that pancreatic ferments might have something to do with the origin of acute degeneration of the liver has been suggested by various writers, and Rudolph reviews their arguments. Soetbeer, in 1903, reported a case of degeneration of the liver with extreme icterus in which he was unable to find any cause for the icterus. Sugar had been observed in the urine, and this suggests the possibility of a primary pancreatic affection. The passage of albumin-dissolving ferments from the pancreas into the liver may have been the cause of the icterus. The pancreas should be examined in all cases of degeneration of the liver.

77. **Influence of Roentgen Rays on Metabolism in Leukemia.**—Königer tabulates the findings in seven cases of chronic myeloid leukemia, under the influence of Roentgen treatment, in respect to the behavior of the urea, purin bases, phosphates, amount of urine, proportion of nitrogen, etc. The Roentgen treatment evidently does not affect the essential cause of the disease, but it limits the new formation of cells, and thus brings about a gradual retrogression of the leukemic composition of the blood and organs. Whether this effect is due to the action of the rays on the cells alone is dubious. It is certainly remarkable that exposure of the spleen alone is sufficient to accomplish the purpose. His experience has been decidedly in favor of exposing the spleen alone as much more effectual than exposure of any other parts of the body. The reduction in the elimination of the purin bodies is the most certain sign of the improvement of the leukemia. There are no grounds as yet for the assumption of a parasitic origin of the disease. The dosage of the exposures should aim to restrict cell proliferation while avoiding permanent increase in cell destruction.

79. **Chylous Dropsy.**—Sommer relates a case of profuse milky effusion requiring repeated tapping, in a woman of 51. A carcinoma was found in the ovary, and, in the apparently intact walls of the thoracic duct, nests of cancer cells were found, explaining the permeability.

80. **Phototherapy of Affections Due to Parasites in the Blood.**—The experiments and experiences related show that there is not much prospect of favorable results from phototherapy in this line.

82. **Embolism of Superior Mesenteric Artery.**—Haegel's patient recovered, but he is convinced that the signs indicated embolism of the superior mesenteric artery. The patient was a healthy young man with indications of a mild septic affection of the heart, circumscribed tenderness in the bone of the left forearm and an exanthem. The air passages were apparently normal. Suddenly, two weeks after the first symptoms, violent tenesmus developed with intense abdominal pains, complete unconsciousness, vomiting of bile, the arms and legs cool, but the reflexes not altered, pulse small and rapid, and temperature 36.6 C. in the rectum. The abdominal pains grew worse at times, and the patient constantly strove to get up out of bed. At brief intervals 5 c.c. of camphorated oil were injected; 30 drops of tincture of opium quieted the patient. The temperature rose to 37.1 C. and the next morning there were several diarrheic passages containing considerable amounts of red, thick blood. Vomiting and thirst continued and a slight protrusion was evident in the ileocecal and umbilical regions. The condition was so threatening that 5 gm. camphorated oil were again injected, and by night the patient was relieved. The stools were fetid and contained blood for a few days, and an exanthem developed, but the pains subsided by the third day, and by the ninth the patient was allowed to sit up. His diet was regulated for two months to avoid food containing much waste. The heart returned to normal conditions, but slight aortic valvular disturbance was detected five months later. The case answers Kussmaul's description of typical embolism of the superior mesenteric artery, but was further distinguished by the tenesmus at the onset. Only six cases of recovery are on record, confirmed in four by the postmortem findings later. Haegel thinks that the idea of thrombosis can be excluded in his case, as the patient was a healthy young man, ill only for a few days.

84. **Dysthyroid Deafness.**—Bloch applies this term to the deafness observed in many cases of defective functioning of the thyroid gland. Its most pronounced type is in the deaf-mutism of the cretins, but the deafness ranges from slight to severe in a large proportion of persons with goiter. He has been examining hundreds of goiter patients with a special view to the ear disturbances, and tabulates the findings from various standpoints. As the disturbance is chronic, treatment must be continued to correspond. In the old, consolidated cases little improvement can be anticipated, and in the more recent cases only after persevering thyroid treatment. The benefits of treatment may not be apparent for a long time, but once realized, they are gratefully appreciated, although the treatment may have to be continued through life to maintain the improvement gained. Bloch never gives more than two thyroid tablets a day, at 0.3 gm. each, for adults, and 0.1 gm. for the young, suspending treatment for a time after 100 have been taken, and then recommencing with a smaller dose. The article is dedicated to Politzer on the occasion of his seventieth birthday.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

85 (XXXII, No. 43.) Favorable Results of Feeding Infants with Perhydrase Milk.—Ernährungsversuche mit Perhydrasemilch. A. Böhme (Marburg).
86 Experimentelle Untersuchungen über das biologische Verhalten der Bakterien im Dickdarm (in large intestine). Rolly.
87 Fall von Tay-Sachsscher familärer amaurotischer Idiotie. L. Huismans.
88 *Quinin-Caffein Treatment of Eye for Hay Fever.—Das Helmholtzsche Verfahren gegen Heufieber, modifiziert. Boesser.
89 *Zur Therapie der Otitis externa circumscripta und verwandter Affektionen. S. Schoengut.
90 *Instructions for Workers in Poisonous Substances.—Die Hilfe für Giftarbeiter. L. Lewin.

88. **Quinin-Caffein External Applications in Hay Fever.**—Boesser has modified Helmholtz' method of local application of quinin for hay fever by mixing caffein with the quinin and instilling it into the eye instead of the nose. Two parts of quinin and one part of caffein are mixed and a 1 per cent. solution made of the mixture. A few drops of this solution

are instilled into the eye at the first symptoms of the typical itching in the inner angle, the patient reclining for a few minutes. The fluid bathes the conjunctiva and passes into the nose, flushing the nasal passages until a bitter taste is felt in the throat. He says that, with the exception of the maxillary sinus, this disinfects all the parts where the hay-fever reflex symptoms are generated. The influence of the instillation is felt for four or six hours or longer, all the symptoms vanishing for this length of time. In case of great sensitiveness a 1 per 1,000 solution may be preferable, but the dilution with the lachrymal secretion generally renders the 1 per cent. solution none too strong.

89. **Treatment of Otitis.**—Schoengut has found pressure very useful in treatment of circumscribed otitis externa and allied affections. He tampons the ear in case of a furuncle in the auditory canal with a strip of bichlorid gauze, 2 cm. wide, after due disinfection, and has found this very satisfactory in the majority of cases. The occasional failures have led him to try Bier's stasis hyperemia with a constricting band around the neck. His experience with 34 patients has convinced him that the method is very effectual if applied with care and individualized. It is especially useful for acute inflammatory processes in the meatus, especially circumscribed otitis externa. The prompt relief from pain is one of its greatest advantages.

90. **Warning Circular for Workmen Employed in Poisonous Substances.**—The various subheadings of the circular are: What is a poison? Who is a worker in poisons? Who are the ones injured by the poison? Slow and fast poisoning. How does the poison get into the body? What are the signs of poisoning? What must a worker in poisons do to protect himself against the poison? Under the latter heading are a dozen separate paragraphs, including the following:

> The prudent and cleanly worker in poisons keeps healthy longer than the careless and the uncleanly. If the workman keeps the danger from the poison in mind, he will not allow it to come in contact with his skin or into his mouth or nose. Most of the poison that reaches there can be removed by washing his face and head thoroughly with soap morning, noon and night; before eating, washing his hands with soap and sand, rinsing his mouth and snuffing water into his nose. When there are no facilities for bathing, he should wash his body with soap and sand twice a week. Poisonous gases and fumes pass rapidly into the lungs and blood. Washing does not help here, only the admittance of abundance of air into the workroom through windows and doors or arrangements to suck the air out of the workroom. The wise workman will not complain of the abundance of air, even if the room gets a little draughty or cold. The wise workman will also use all the means offered to him for his protection: breathing masks, sponges and gloves, even if they are very inconvenient. The worker in poisons should also breathe through his nose. During his work the worker on poisonous substances should not eat, nor drink, nor smoke, nor sing. Liquor drinking is dangerous for workers in poisons in many cases. When the worker in poisons takes his food at the factory or at his home, he should change his poison-soiled clothing and his neck-cloth and put on clean ones, or otherwise some of the poison may get into his food. He should never play with his children in his poison-soiled clothes for fear that they may get some of the poison.

Münchener medizinische Wochenschrift.

91 (LIII, No. 41.) Agglutinine im passiv Immunisierten Organismus. Manteufel.
92 *Natürliche Darm-Desinfektion (of intestines). E. Moro.
93 Further Study of Proteolytic Ferment Action.—Unterschiede im Fermentgehalt der Leukozyten bei Warmblutern. Nachweis eines eiweissverdauenden Fermentes in Kolostrum. G. Jochmann and E. Müller.
94 Nachweis der Spirochaete pallida in syphilitischen Produkten. E. Ritter.
95 *Zur Technik des Aether-Rausches (anesthesia during first whiffs of ether). P. Sudeck.
96 Katgut vom gesunden Schlachttier (from healthy cattle). F. Kuhn.
97 Ueber die Induratio penis plastica. L. Waelsch.
98 Behandlung mit Quecksilberlicht (mercury light). Assfalg.
99 Zur Histologie der Chondrosarkome. K. Mayer.
100 *Value of Roentgen Examination of Thorax in Pneumonia.—Thorax-Durchleuchtung bei der Pneumonie, namentlich bei centraler Lokalisation. H. Rieder. (Commenced in No. 40.)

92. **Natural Disinfection of the Intestines.**—Moro states that in 1900 Escherich administered to infants young cultures of the *Bacterium lactis aërogenes*, hoping that its proliferation would drive the *B. proteus* out of the intestines, and his attempts were successful. Tissier has also recently reported administration of mixed cultures of paralactic acid bacilli and the bifidus to sick infants and older children, apparently with excellent results. Large amounts of cultures are necessary, however, to accomplish the desired result when administered by the mouth, as Moro's experiments have demonstrated. He has found that much better results are realized when the cultures are introduced into the rectum. He stirred young cultures of the colon bacillus into 250 gm. of 8 per cent. agar, solidifying at 40 C., and injected the mixture into the rectum in cases of dysentery and typhoid. The colon bacillus rapidly crowded out the specific bacteria. Nature shows us the ideal for this kind of disinfection in the pure cultures of the *B. bifidus* in the stools of healthy breast-fed infants. The contents of the intestines favor the growth of these active and normal intestinal bacteria alone. If artificially fed infants, older children and adults are fed for two or three days on human breast milk exclusively, the stools become similar to those of breast-fed infants. The same occurs also with dogs fed on human milk. The *B. bifidus* can be easily cultivated on human milk (anaërobic) from the stools of persons fed on breast milk. Human milk acts like a favoring ferment on the growth of this organism, both in the test-tube and in the intestines, promoting its growth so that all other species of bacteria are crowded into the background. The practical conclusions of his research and article are that the administration of human milk to infants and to older persons is the ideal natural mode of disinfecting the intestines in all forms of infectious intestinal disturbances except those contraindicating a diet containing any fat. Another advantage of the measure is the high nourishing value of the milk and the circumstance that the transformation of the intestinal flora proceeds in such an incredibly short time. The great drawback is the difficulty of procuring breast milk in sufficient amounts. It may be possible that only certain ingredients of human milk are the "bifidus-stimulating principle," and it may be possible to isolate these or to obtain them elsewhere.

95. **Operations During First Whiffs of Ether.**—Sudeck always uses a mask allowing free access of air, and commences to operate as soon as the patient ceases to distinguish between a prick and a touch on the arm, or ceases to reply to questions. He uses from 5 to 15 gm. of ether, very seldom requiring 20 or 25 gm. The patients often cry out as the operation is commenced, but this is not accompanied by any defensive movements, and he thinks it is more the result of suggestion than of any actual sensation of pain, owing to the loss of self control from the ether. The patient still has consciousness enough at the beginning of the operation to open his mouth or the like when told to do so; he is aware of the operation as it proceeds, and later can describe it all, but yet he experiences no pain, merely the sensation of contact, and as soon as the operation is concluded can arise and, merely slightly excited or at least in a somewhat exalted mood, feels perfectly well and after minor operations is able to return to business at once.

100. **Roentgen Examination in Case of Centrally Located Pneumonia.**—Rieder describes his technic and gives a number of *x*-ray views of the lungs of patients with pneumonia. The localization, extent, mode of spreading and other details of the pneumonic focus are shown up well by the *x*-rays. He regards their use as an important advance in the prognosis and treatment of pneumonia.

Virchow's Archiv, Berlin.

101 (185, No. 3.) Seltene Missbildung am Urogenital-Apparat (rare malformation). A. Weinstein.
102 Rhabdomyome des weiblichen Geschlechtsorgans (of female genitalia). F. Berka.
103 Leber-Regeneration und Adenom-Bildung bei akuter Atrophie (of liver). H. Schoppler.
104 Struma mit Kautschuk-Colloid und Tumoren mit kautschuk-colloid-ähnlichen Massen. H. Wiget.
105 Experimentelle Untersuchungen über Fragmentatio myocardii. Giese.
106 3 Cases of Appearance of Fat in Muscles After Crushing of Cervical Vertebræ. Three cases.—Auftreten von Fett in der Körpermuskulatur bei Durchquetschung des Halsmarkes. R. Zipkin.
107 Zur normalen und pathologischen Histologie des Wurmfortsatzes (of appendix). W. C. MacCarty.
108 *Pseudo-Tuberkulose im Dickdarm (encystierte Amoeben?) (in large intestine). M. Leube.
109 Zur pathologischen Physiologie der durch Aetzung erzeugten Schleimhauterkrankung des Magens (caustic injury of gastric mucosa). S. Saito.

108. **Pseudo-Tuberculosis of Rectum.**—Leube reports the case of a well-to-do woman who complained of bloody stools and occasional tenesmus, the symptoms first observed about three months before; there was no diarrhea. The rectum presented

several small hard nodules in a circle around a depressed spot. The diagnosis of carcinomatous, cicatrized ulcer and infiltration of the glands was not confirmed by the operation. The excised parts showed that the mucosa was entirely sound without other lesions than the nodules. They resembled tubercles in nearly every respect, with numerous giant cells, but the microscope showed that they were of parasitic origin. The smallness of the nodules excluded the oxyuris and suggested the ameba.

Riforma Medica, Naples.

Last indexed, page 1863.

110 (XXII, No. 41.) Di una sindrome pseudo-ascitica in bambini affetti da dispepsia cronica (in infants). G. B. Allaria.
111 L'intervento chirurgico nello stadio intermediaro dell'appendicite acuta. P. Fiori.
112 (No. 42.) Caso di afasia motrice con emianestesia corticale. A. Rovighi.
113 *Una sindrome scorbutica determinata dal bacillo die Eberth. G. A. Auverny.
114 *Cistadamantinoma multiloculare del mascellare infer.ore (of lower jaw). Studio anat.-patologico sulle neoplasie di origine paradentarla. O. Cignozzi. (Commenced in No. 38.)
115 (No. 43.) *The Heart in Exophthalmic Goiter.—Il cuore nel morbo Basedo. G. Dernini.
116 Eredita per tubercolosi. G. Zagari.
117 *Coagulating Power of Blood Serum in Epilepsy.—Il potere coagulante del siero di sangue degli epilettici. C. Besta.
118 (No. 44.) Sulla nuova reazione mecrochimica dello sperma del Barberio (reaction for spermatic fluid). C. Galbo.
119 Technic for Tendon Transplantation in Operations for Strabismus.—Technic for Squint Operations.—La tecnica dell' accorciamento e del traplanto tendineo nella cura dello strabismo. G. Monzardi.
120 (No. 45.) Sull' azione fisiologica e terapeutica dell' isoprale. A. Carusl.

113. **Scorbutic Syndrome Due to Typhoid Bacilli.**—Auverny reports a case of apparent scorbutus, the body covered with hemorrhagic patches, the joints painful, with great weakness and fever at 40 C. most of the time with the typical typhoid curve. The temperature rose as the hemorrhagic patches developed, and it also rose at the time of a severe epistaxis and remained high during the following 10 days before the patient's death. The facts observed in this case and the autopsy findings suggest that the typhoid bacilli had done damage more by their mere presence in the blood than by the toxins they had generated. There were no appreciable symptoms to attract attention to the digestive tract, but ulcerations were found in Peyer's patches at autopsy.

114. **Cysts in the Lower Jaw.**—From this study of 45 cases, including one personally observed, Cignozzi concludes that although these paradental cystic, solid and mixed tumors in the lower jaw are innocent in so far as they are of slow development, do not cause metastasis and do not affect the general health, yet they display a tendency to local recurrence which suggests the necessity for ample resection. The solid and semisolid tumors show this tendency to recurrence more markedly than the cystic.

115. **The Heart in Exophthalmic Goiter.**—Dernini remarks that the heart is peculiarly sensitive to the influence of fatigue in persons with exophthalmic goiter. Its reserve energy is soon exhausted and it enlarges. This increase in the transverse diameter of the heart may be slight and transient, but it always accompanies fatigue, and is most prominent in the right heart, involving the auricle when it attains considerable proportions. The auricle may enlarge also independently of the valvular insufficiency. The discovery of this dilatation of the heart after fatigue may aid in differentiating the affection in its early stages or in its latent form. The aorta may also display some enlargement and the peripheral arteries may be enlarged. The return of the heart to its normal size is generally complete, although it occurs more slowly and incompletely in advanced stages of the disease. The sounds of the heart in exophthalmic goiter, in the absence of anatomic lesions, parallel the transient changes in the diameters of the heart, occurring promptly, being intense, transient and subject to great variations even during brief intervals of time. The state of the blood does not necessarily influence the sounds in the heart and vessels. He relates a dozen cases in detail, with diagrams to show the great changes induced by even moderate fatigue in the action of the heart, the behavior of the pulse, and the return to normal under the influence of repose. The curves are characteristic and of differential value, he thinks.

117. **Coagulating Power of Blood Serum in Epileptics.**—Besta's researches confirm those of Ceni in regard to the specific modification of the composition of the blood in epileptics. The modification seems to be constant in the individual, not varying with the seizures, consequently the latter can not be regarded as the explosive throwing off of morbid products. The proportion of fibrin ferment in the blood is much below normal, according to his experience, and as the fibrin ferment is an organic compound of lime, it follows, he thinks, that the epileptic may be suffering from a lack of lime.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

MATERIA MEDICA AND THERAPEUTICS, PREVENTIVE MEDICINE, CLIMATOLOGY, FORENSIC MEDICINE. Edited by G. F. Butler, Ph.G., M.D., H. B. Favill, A.B., M.D., N. Bridge, A.M., M.D., D. R. Brower, A.M., M.D., and H. N. Moyer, M.D., Being Vol. VIII, Series 1906 of the Practical Medicine Series, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the Editorial Charge of G. P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Cloth. Pp. 358. Chicago: The Year Book Publishers, 1906.

RETRO-PERITONEAL HERNIA, Being the Arris and Gale Lectures on the Anatomy and Surgery of the Peritoneal Fossæ, delivered at the Royal College of Surgeons of England in 1887. By B. G. A. Moynihan, M.S., F.R.C.S. Second Edition, Revised and in Part Rewritten by the Author and J. F. Dodson, M.S., F.R.C.S. Cloth. Pp. 195. Price, $2.00 net. New York: William Wood & Company.

TRANSACTIONS OF THE SECOND INTERNATIONAL SANITARY CONVENTION OF THE AMERICAN REPUBLICS, held at the New Willard Hotel, Washington, D. C., Oct. 9-14, 1905, under the Auspices of the Governing Board of the International Union of the American Republics. Paper. Pp. 460. Washington, D. C.: Government Printing Office, 1906.

ENLARGEMENT OF THE PROSTATE, with a Description of the Author's Operation of Total Enucleation of the Organ. By P. J. Freyer, M.A., M.D., Surgeon to King Edward VII's Hospital for Officers, and to St. Peter's Hospital, etc. Third Edition. Cloth. Pp. 154. Price, $2.00 net. New York: William Wood & Company.

GOLDEN RULES OF PEDRIATICS, Aphorisms, Observations and Precepts on the Science and Art of Pediatrics, Giving Practical Rules for Diagnosis and Prognosis, etc. By J. Zahorsky, A.B., M.D. Cloth. Pp. 362. Price, $3.00 net. St. Louis: The C. V. Mosby Medical Book Co., 1906.

THE INTEGRATIVE ACTION OF THE NERVOUS SYSTEM. By C. S. Sherrington, D.Sc., Hon. LL.D., F.R.S., Holt Professor of Physiology in the University of Liverpool, etc. With Illustrations. Cloth. Pp. 411. Price, $3.50. New York: Charles Scribner's Sons, 1906.

THE PHYSICIAN'S VISITING LIST FOR 1907. Fifty-sixth Year of its Publication. The Dose-Table herein has been revised in accordance with the new U. S. Pharmacopeia (1900). Flexible Leather. Price, $1.00. Philadelphia: P. Blakiston's Son & Co., 1907.

CLINICAL THERAPEUTICS. A Handbook on the Special Treatment of Internal Disease. By A. C. Croftan, Associate Professor of Medicine, Medical Department, University of Illinois, etc. Cloth. Pp. 626. Price, $5.00. Chicago: Cleveland Press, 1906.

PULMONARY PHTHISIS; Its Diagnosis, Prognosis and Treatment. By H. H. Thomson, M.D., Visiting Physician to the Consumption Sanatorium of Scotland Bridge of Weir, N.B. Cloth. Pp. 188. Price, $2.00 net. New York: William Wood & Company.

PATHOLOGY OF THE EYE. By J. H. Parsons, B.S., D.Sc., F.R.C.S., Assistant Ophthalmic Surgeon, University College Hospital, etc. Vol. III. General Pathology—Part I. Cloth. Pp. 1128. Price, $3.50 net. New York: G. P. Putnam's Sons, 1906.

TREATMENT OF DISEASES OF THE DIGESTIVE SYSTEM. By R. Saundby, M.D., M.Sc., LLD., F.R.C.P., Professor of Medicine in the University of Birmingham, etc. Cloth. Pp. 133. Price, $2.75. Philadelphia: J. B. Lippincott Company, 1906.

MINOR MALADIES AND THEIR TREATMENT. By L. Williams, M.D., M.R.C.P., Physician to the French Hospital; Assistant Physician to the Metropolitan Hospital, etc. Cloth. Pp. 383. Price, $2.50 net. New York: William Wood & Company.

HIGH FREQUENCY CURRENTS; Their Production, Physical Properties, Physiologic Effects and Therapeutical Uses. By H. E. Crook, M.D., B.S. Cloth. Pp. 296. Price, $2.00 net. New York: William Wood & Company.

PROCEEDINGS OF THE CONNECTICUT STATE MEDICAL SOCIETY, 1906. One Hundred and Fourteenth Annual Convention held at New Haven, May 23-24. Cloth. Pp. 354. Published by the Society.

LECTURES ON DISEASES OF THE LUNGS. By J. A. Lindsay, M.D., F.R.C.P. Second Edition. Enlarged and Rewritten. Cloth. Pp. 509. Price, $4.00 net. New York: William Wood & Company.

THE MEDICAL RECORD VISITING LIST OR PHYSICIAN'S DIARY FOR 1907. New Revised Edition. Flexible Leather. Price, $1.50. New York: William Wood & Company.

DES HAARSCHWUNDS Ursachen und Behandlung. By S. Jessner. Paper. Pp. 52. Price, Mk. 0.80. Würzburg: A. Stubers Verlag. 1907.

KOSMETISCHE HAUTLEIDEN. By S. Jessner. Paper. Pp. 124. Price, Mk. 2. Würzburg: A. Stubers Verlag, 1907.